

THE TALKING MACHINE REVIEW



No 5

August

1970



WALTER SOOMER, BARITONE

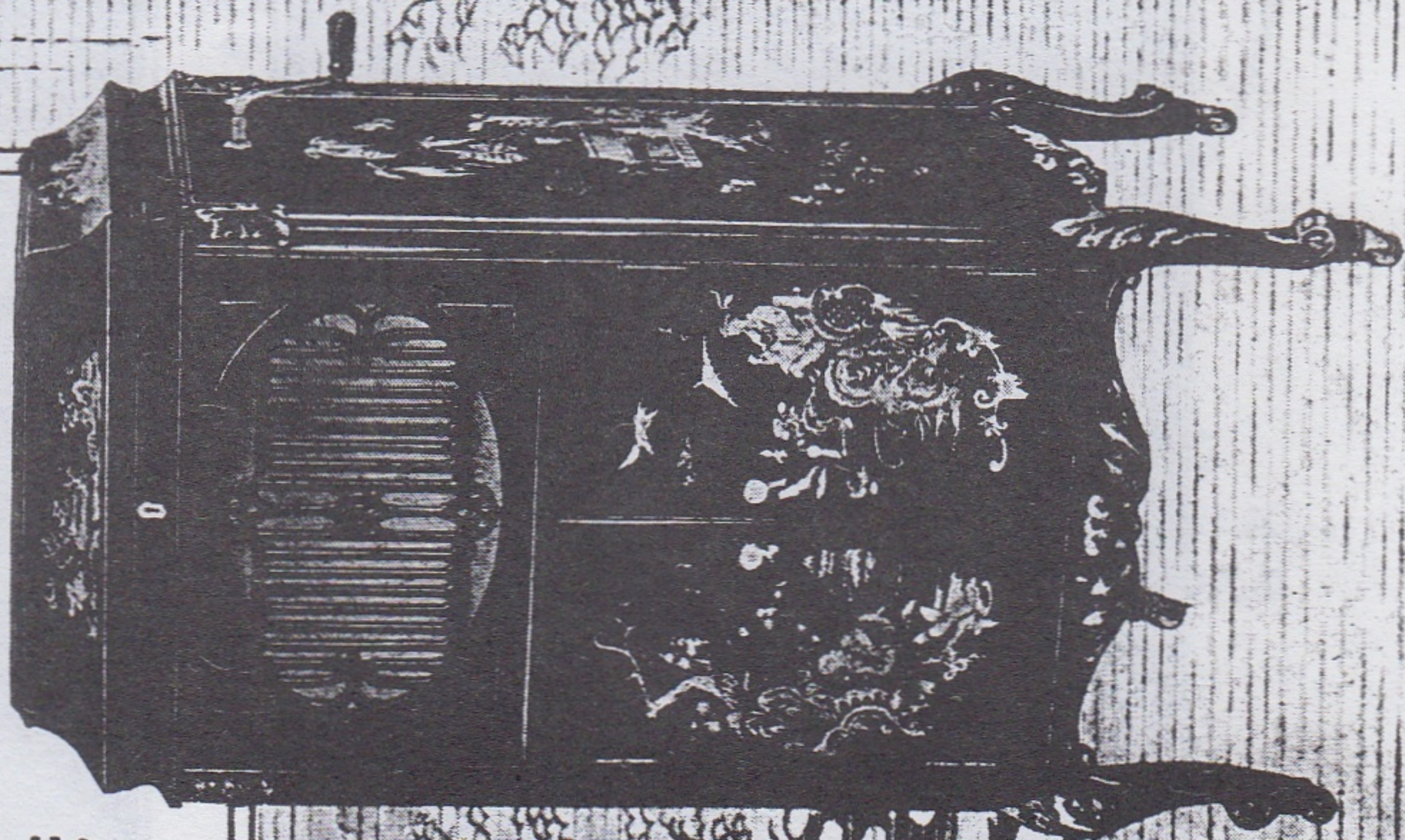


ESTER FERRABINI, SOPRANO

BRUNSWICK

Japanese Model \$325

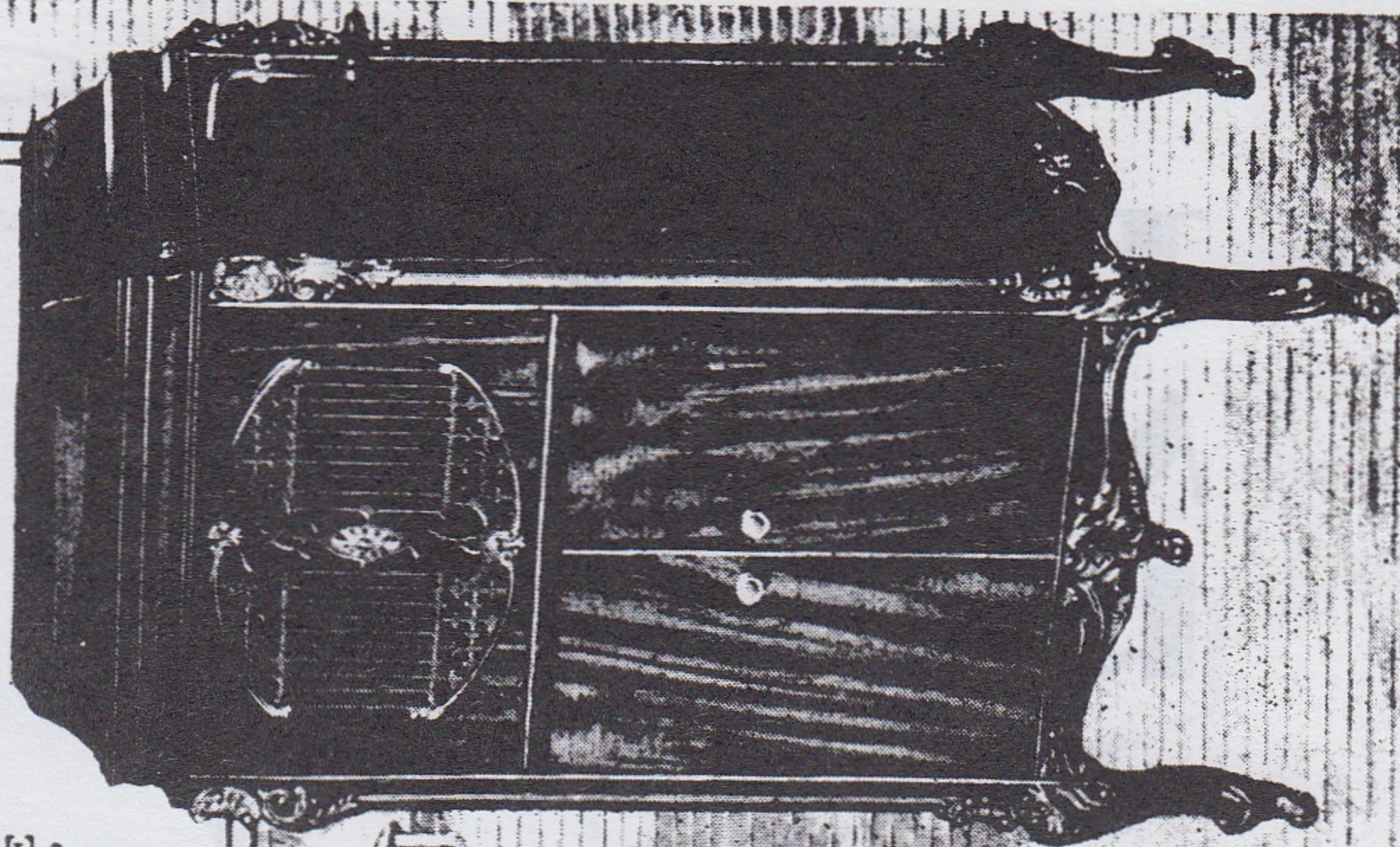
BLACK lacquered only. Height, 48 inches; width, 22½ inches; depth, 22½ inches. Equipped with newly developed Ultona all-record Reproducer and the new oval all-wood Tone Amplifier. Automatically balanced top. Powerful spring motor, nickel-plated. Twelve inch turntable. Automatic stop. Trimmings gold-plated. Drawer compartments for 100 records; conveniently indexed. Compartment for accessories.

STYLE
"127"

BRUNSWICK

Mahogany and Oak \$310

HHEIGHT, 49½ inches; width, 23½ inches; depth, 24½ inches. Equipped with newly developed Ultona all-record Reproducer and the new oval all-wood Tone Amplifier. Tone modifier. Automatically balanced top. Extra strong four-spring motor, nickel-plated. Twelve inch turntable. Automatic stop. Trimmings gold-plated. Drawer compartments for 100 records; conveniently indexed. Compartment for accessories.

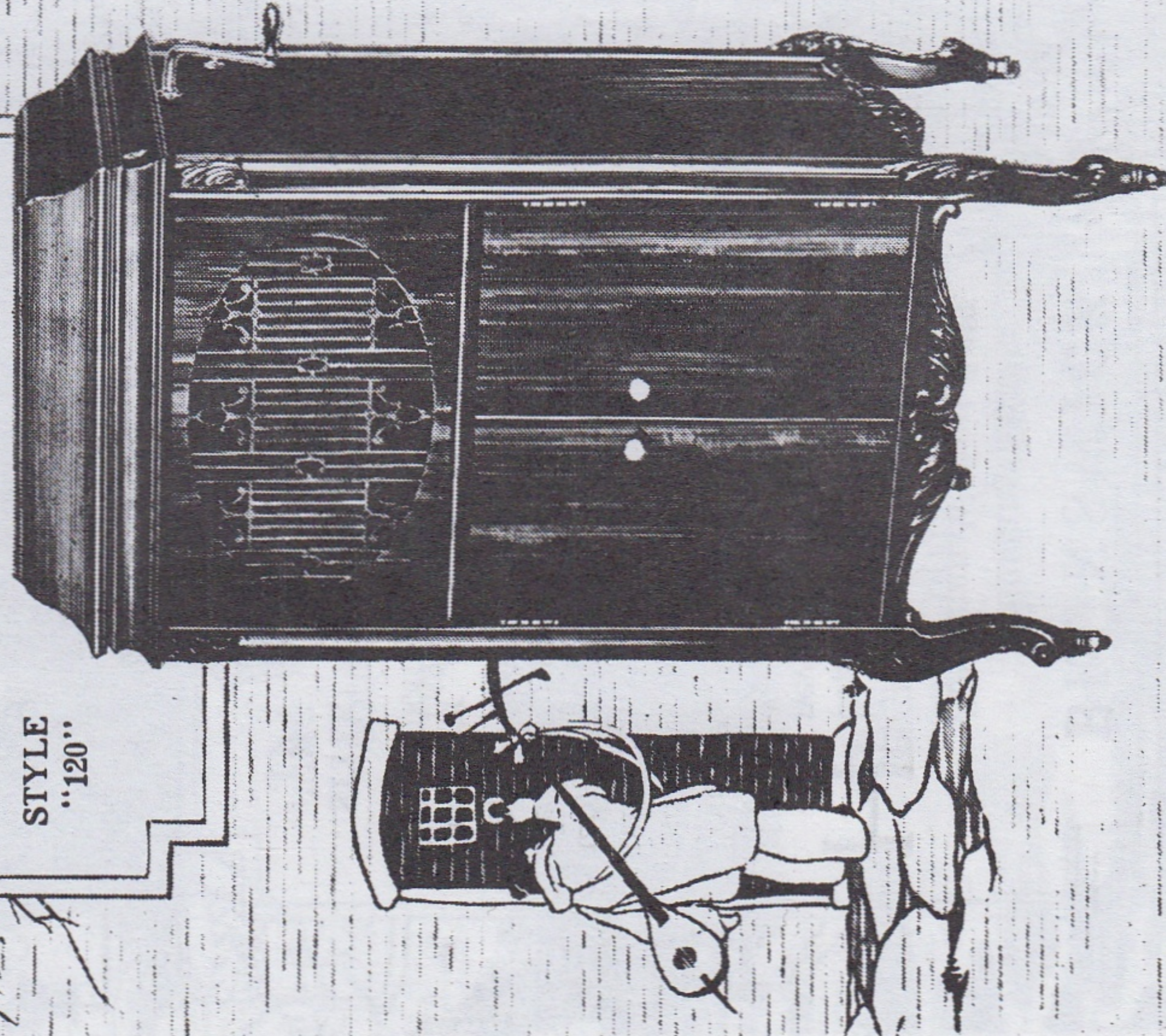
STYLE
"122"

BRUNSWICK

Mahogany and Oak \$285

HHEIGHT, 48 inches; width, 22½ inches; depth, 22½ inches. Equipped with newly developed Ultona all-record Reproducer and the new oval all-wood Tone Amplifier. Tone modifier. Automatically balanced top. Extra strong four-spring turntable. Twelve-inch turntable. Automatic stop. Trimings gold-plated. Drawer compartments for 100 records; conveniently indexed. Compartment for accessories.

STYLE
"120"

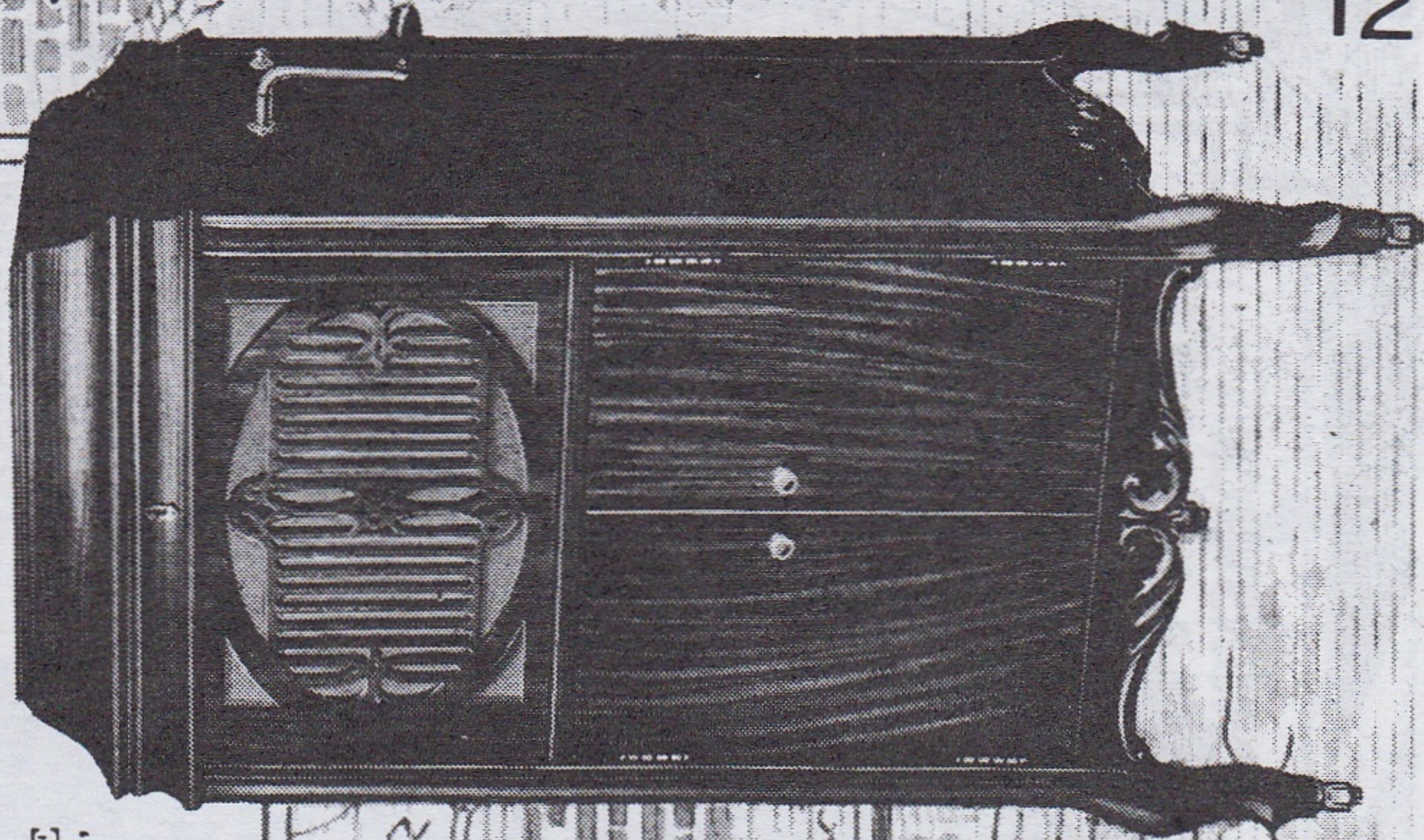


BRUNSWICK

Mahogany and Oak \$250

HHEIGHT, 48 inches; width, 22 inches; depth, 23 inches. Equipped with newly developed Ultona all-record Reproducer and the new oval all-wood Tone Amplifier. Tone modifier. Automatically balanced top. Extra strong four-spring turntable. Automatic stop. Trimings gold plated. Drawer compartments for 100 records; conveniently indexed. Compartment for accessories.

STYLE
"117"

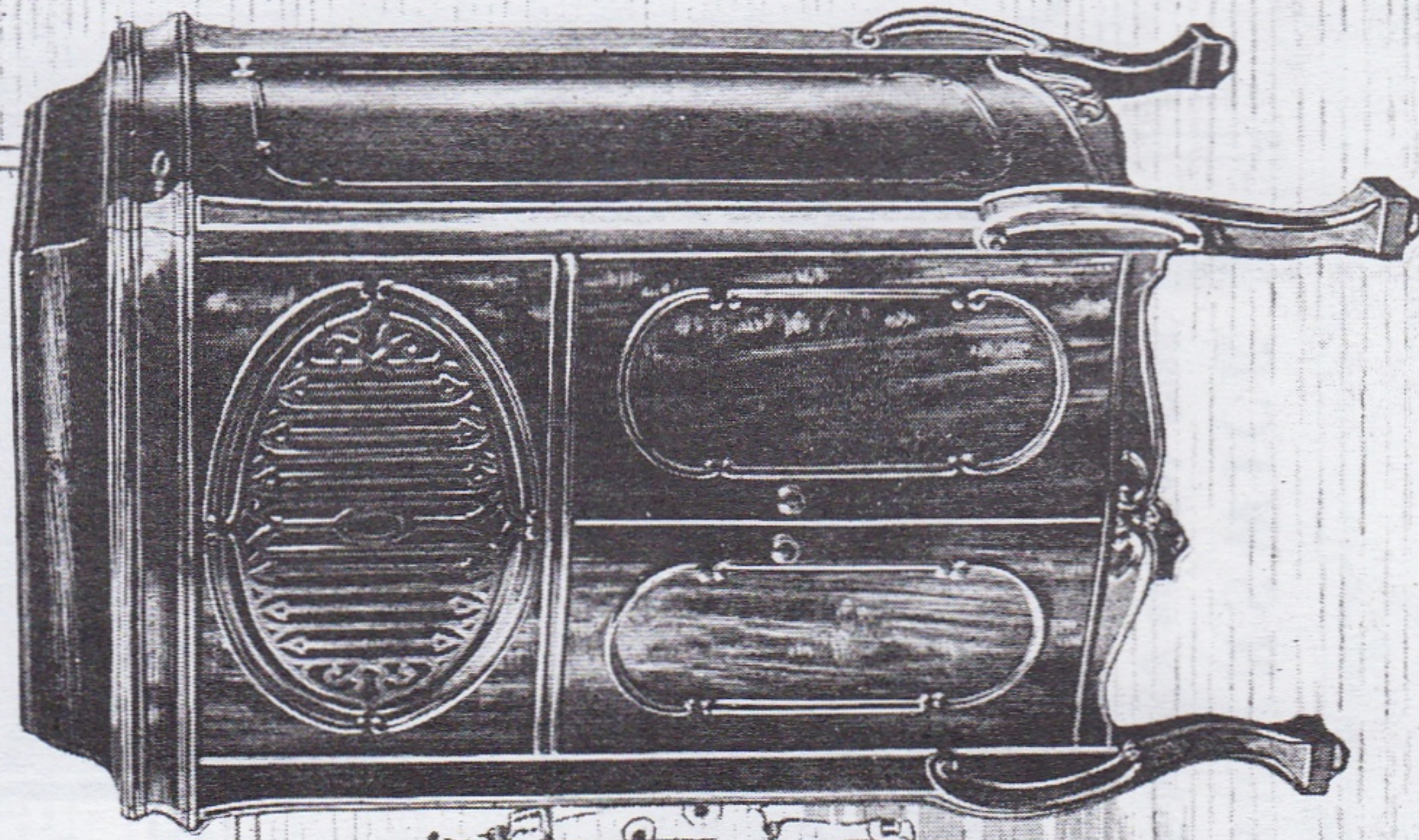


BRUNSWICK

Mahogany \$400
American Walnut \$425

HHEIGHT, 49 inches; width, 24 inches; depth, 24 inches. Equipped with newly developed Ultona all-record Reproducer and the new oval all-wood Tone Amplifier. Tone modifier. Automatically balanced top. Powerful spring motor, nickel-plated. Twelve inch turntable. Automatic stop. Trimmings gold-plated. Drawer compartments for 100 records; conveniently indexed. Compartment for accessories. Equipped with electric motor, \$50 extra.

STYLE
"135"



BRUNSWICK MODELS DE LUXE

Each cabinet is an exquisite union of art, music and utility. They are not to be associated or even mentioned in the same breath with the bizarre types usually exhibited in the "pattern parlor" of the average show window. They are art treasures reminiscent of bygone centuries that interpret the customs, manners, ideals and thoughts of the people of periods of which they are faithful reproductions. To the lover of good furniture—the modern collector and interior decorator—they make an ardent appeal.

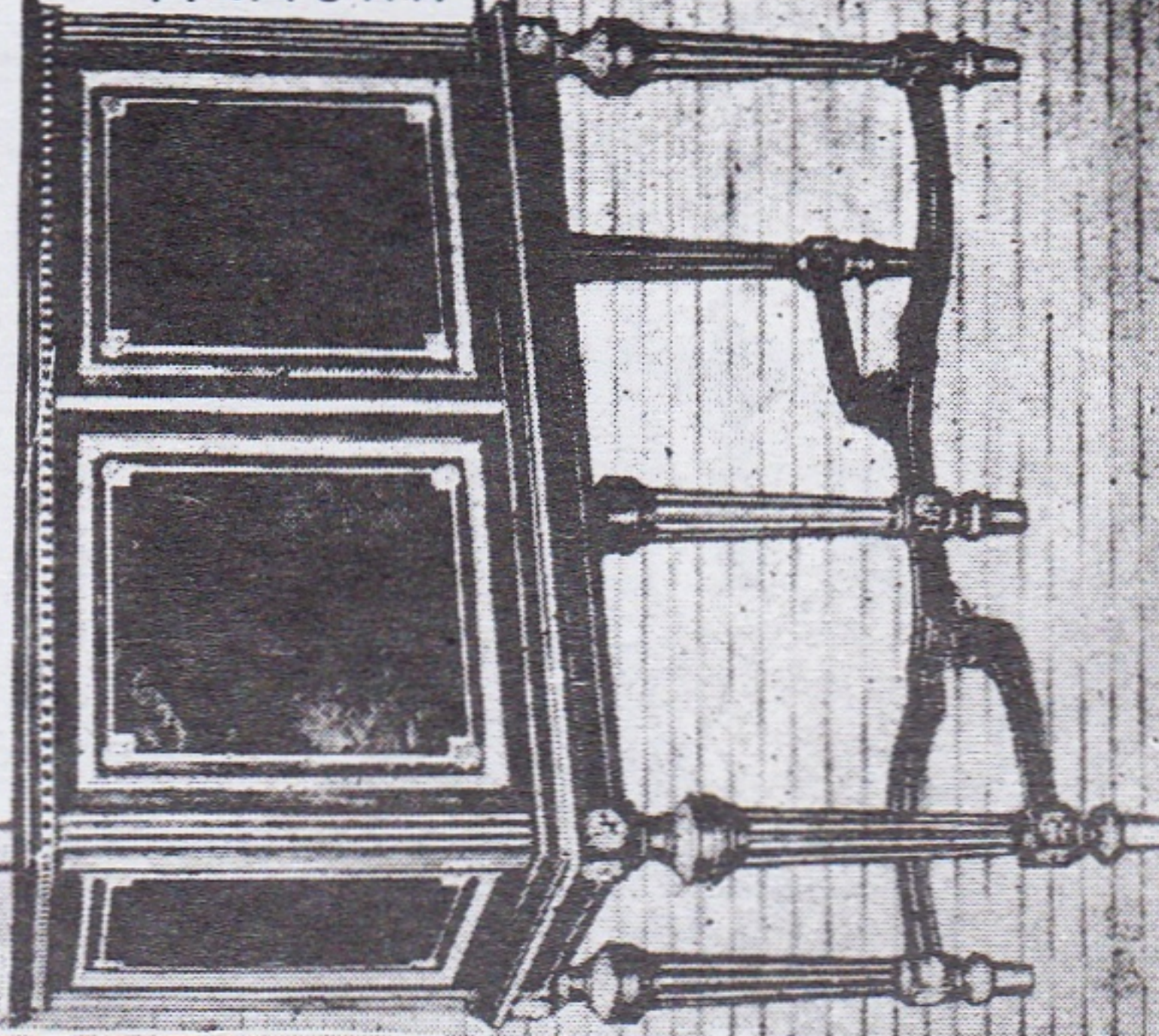
THE LOMBARDI—An Italian design—combines every charm that has given Italian furniture the fame it deserves. The classic feeling has been interpreted by our designer in a simpler but very effective manner.

THE BEAUX ARTS—A Louis Sieze design, is really a masterpiece in proportion and detail. It can be used with the finest examples of furniture of any of the French periods. Carefully matched walnut panels in doors and ends, also the combination of exquisite French mouldings are featured in this cabinet.

THE OXFORD—An early English design, can be used in connection with English furniture of the early and late 18th Century. Much attention has been given to details which lovers of English furniture will appreciate.

THE GOTHAM—Will interest those who are anxious to secure a cabinet that is individual in itself and that also can be used in combination with various styles and types of furniture. The size of this cabinet permits its use in many places in the modern apartment and living room.

If you are
interested in
Brunswick
Models De Luxe
ask us for
Brochure in
color treats of
four models
in detail.



In 1921 a record dealer in Stockholm decided to start his own label. He named it Skandia and used the "Three Crowns" symbol which has been the national emblem of Sweden for several hundred years. The label is usually blue (sometimes pink or purple) with the crowns in gold. An illustration is found on page 147.

The pressing equipment at Rolf's factory (see TMR No.3, page 71) was put on a barge and brought to a Stockholm suburb named Sundbyberg. Later the recording equipment from Rolf's home was also brought there. The company began a heavy recording schedule and during the period 1921-1923 they recorded over 400 sides. However, in 1923 they had run out of capital and had to sell to Odeon. This company used the Sundbyberg studio (the only recording studio in Sweden at that time) for its own cuttings and those for the Ekophone label (which also belonged to the Lindström group). The Skandia matrix series had run from 1 to 425 and was now continued by Odeon and ended at 637 in the spring of 1925. During the 1924/25 period the recording engineer was considerate enough of future researchers to scratch the recording date on the label!

The Skandia label issued some 356 titles. The most interesting are perhaps the six titles made by the American banjoist Russell Jones and his band in 1921 - they are the first genuine Swedish jazz recordings.

The catalogue series are given below. The SG, SK, SL and SV prefixes indicate different price classes. The SL series was 18 cm., the others 25 cm.

SK 101 - 117	SG 118 - 132	SV 133- 134	SG 135 - 138	1001-1007(no prefix)
SV1008 - 1024	SK 1025- 1032	SV1033- 1042	SG1043- 1068	1501 (no prefix)
SV1502 - 1549	SG 1550- 1574	SL5001- 5016		

JAY WHIDDEN

S. WALKER

continued from page 116

London, 12th. October, 1928

DC-551-2	Just a little kiss	Victory 32
DC-552-1	Love lies voc?	rejected?
DC-553-2	Down by the old front gate	Victory 28
DC-554-	Nicolette	Victory?
DC-555-	Japansy wz voc?	Victory?
DC-556-2	The toy-town artillery	Victory?

NOTE: Victorys 28 and 32 as VICTORY DANCE ORCHESTRA. At least one copy of 28 has -2 handwritten in the wax and -3 stamped, but the files give -2.

London, 19th. October, 1928

W-5017-2	Down by the old front gate	voc JW	Imperial 1981
W-5018-2,-3	Sakatchewan	voc JW	Imp 1982
W-5019-2	Virginia(There's a blue ridge in my heart)	Voc JW	Imp 1982
W-5020-2,-3	Sweet Ukelele Maid	voc JW	Imp 1981

London, 9th. November, 1928

W-5047-2	Roll away, clouds	voc JW	Imp 1996
W-5048-2	All by yourself in the moonlight	voc JW	Imp 1996
W-5049-2,-3	The magic violin	wz voc JW	Imp 1999
W-5050-2	Japansy wz	voc JW	Imp 1999

London, 3rd. December, 1928

DC-552-3	Love Lies	voc?	Victory ?
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Victory records were of 7-inch diameter and sold, principally at Woolworth's.

126

London, 7th. December, 1928 Jay Whidden's Rhythm Boys (vocal)

W-5061-2	Underneath the blue	voc JWPB	Imp 2000
W-5061-3	Underneath the blue	voc JWRB	Shown in files as issued
W-6062-3	Minnetonka	voc JWRB	Imp 2000
W-5065-2	My inspiration is you	voc JWRB	Imp 1985?
W-5066-3	Ramona	wz voc JWRB	Imp 1985?

NOTE: Matrices 5063 & 5064 are by different artistes on different days. MY INSPIRATION IS YOU and RAMONA were recorded by Ronnie Munro's Orchestra on 11th. November, 1928 (matrices 5039-2, 5038-2) respectively. It is uncertain whose versions were used on Imperial 1985, which is labelled "GEORGE WEST'S ORCHESTRA", with the Four Spades in Vocal Harmony. Both sets of masters are shown in the wax, the Munro's in raised type, the Whidden in normal indented type. The label displays Munro masters, and at least one copy uses these on aural evidence, being a larger band than Whidden's with more concert-like symphonic arrangements.

London, 12th. December, 1928

DC-591-2	Sonny Boy	Victory 46
DC-592-2	You're in my heart	Victory 51
DC-593-2	All by yourself in the moonlight	Victory 45
DC-594-2	Out of the dawn	Victory 49
DC-595-2	Chloe	Victory 44
DC-596-2	Jeannine	wz Victory 43

NOTE: Victories 43, 44, 45 & 49 as 'THE MUSIC MASTERS' Directed by Jay Whidden.
Victories 46 and 51 as JAYSON'S DANCE ORCHESTRA

London, 11th. January, 1929 Jay Whidden and two others (vocal trio)

W-5078-2	You're in my heart (but never in my arms)	TRIO	Imp 2011
W-5079	Mistakes	voc TRIO wz	Imp 2011
W-5080	She's a great, great girl		Imp 2010
W-5081	It was the dawn of love		Imp 2010
DC-605-2	She's a great, great girl		Victory, rejected?

London, 12th. January, 1929

DC-606	Was it a dream?	wz	Victory ?
DC-607	I can't give you anything but love		Victory 58
DC-608-3	Virginia (there's a blue ridge round my heart)		Victory 59
DC-609	Just like a melody out of the sky		Victory 60
DC-610	There's a rainbow round my shoulder		Victory 61

NOTE: Victories 58, 60 & 61 as "THE MUSIC MASTERS" Directed by Jay Whidden.
Victory 59 as JAYSON'S DANCE ORCHESTRA

London, mid-January, 1929. EDDIE COLE (vocal)

W-5086-3	Louisiana	voc EC	Imp 2024
W-5087	Chu Chin Chow - Selection, part 1		Imp 2029
W-5088	Chu Chin Chow - Selection, part 2		Imp 2029
W-5089-3	I'm crazy over you	voc EC	Imp 2025, Kristall 4006

NOTE: Imperial 2029 as JAY WHIDDEN'S CONCERT ORCHESTRA; the band may be augmented.

London, 26th. January, 1929

W-5102-2	Happy days and lonely nights	voc JW	Imp 2024
W-5103-2	Casabianca (6-8 onestep)	voc JW and band	Imp 2025, Kristall 4022
DC-595-3	Chloe		Victory 44
DC-596-4	Jeannine	wz	Victory?

DC605-4 She's a great, great girl

Victory?

NOTE: Victory 44 as "THE MUSIC MASTERS" Directed by Jay Whidden.

London, 8th. March, 1929

DC-636-2	I'm sorry, Sally	Victory ?
DC-637-2	The toy-town admiral	Victory ?
DC-638-2	A dicky bird told me so	Victory?
DC-639-2	Ninette wz	Victory 84
DC-640-2	Happy days and lonely nights	Victory ?
DC-641-2	I'm crazy over you	Victory ?
DC-642-2	If I had you	Victory ?
DC-643-2	I ain't never been kissed	Victory ?

NOTE: Victory 84 as VICTORY DANCE ORCHESTRA

Kristall 4017 has IF I HAD YOU, as by JAY WHIDDEN AND HIS ORCHESTRA.

This may be a re-mastering of the Victory version, or an otherwise unissued master, or, more probably, a pseudonym.

London, March, 1929

Norman Payne (trumpet) replaces Goldberg on this session at least.

W-5176-2,-3	I lift up my finger and I say, "Tweet tweet"	Voc EC	Imp 2054
W-5177-2	Spread a little happiness	voc EC	Imp 2053
W-5178	A di ky bird told me so	voc EC	Imp 2053
W-5179-2	It goes like this (that funny melody)	Voc EC	Imp 2054

London, April, 1929

W-5190-2	Hello, sunshine, hello	voc EC	Imp 2068
W-5191-2	Blue hills of Pasadena	voc EC	Imp 2068
W-5192	In the heart of the sunset	voc EC	Imp 2067
W-5193-2	Ninnette	voc EC	Imp 2067

London, 2nd. May, 1929

DC-667-2,-3	Me and the man in the moon	voc EC	Victory 95
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The following may also belong to this session:-

W-5215	Iz Izzy Azzy Wozz?	Imp 2089
W-5216	I'll tell Ma (when I get home)	Imp 2089
W-5217-2	When I met Connie in the cornfield	voc EC Imp 2088
W-5218	It's a million to one you're far from home	voc EC Imp 2088

NOTE: Victory 95 as VICTORY DANCE ORCHESTRA

London, 12th. June, 1929

DC-705	Spread a little happiness	voc EC	Victory?
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The following may also belong to the same session:-

W-	Looking at you	Imp 2113
W-	Damascus	Imp 2113

London, c. August, 1929

W-	I'm hungry for kisses, thirsty for love	Imp 2126
W-	Heather moon	Imp 2126
W-5275	Hittin' the ceiling	voc JW Imp 2127, Kristall 4016
W-5276	Hot-footin' it	voc JW Imp 2127, Kristall 4016

London, c. September, 1929

W-5297	I'll see you again	wz Imp 2156
W-5298-2	Cuckoo Valse	wz Imp 2156

128

W-	Sweet Marie	Imp 2157
W-	Come on baby	Imp 2157
London, 11th. October, 1929		
DC-765	The toymaker's dream	Victory 152
W-5314	My wife is on a diet voc EC	Imp 2176
W-5315	Riding on a camel in the desert voc EC	Imp 2176

NOTE: Victory 152 as VICTORY DANCE ORCHESTRA

The reverse of Kristall 4022 has THE WEDDING OF THE PAINTED DOLL, as by JAY WHIDDEN AND HIS ORCHESTRA. This may be an otherwise unissued master, or, more probably, a pseudonym.

JAY WHIDDEN and his BAND

Probably Duncan Whyte, Arthur Niblo (trumpets), unknown trombone, Eddie Pratt (clarinet & alto sax), Sid Coles (clarinet, alto and baritone saxes), Stan Quiddington (clarinet & tenor sax), Jay Whidden (leader, violin), George Scott Wood (piano, arranger), Vic Andrews (banjo, guitar), George Gibbs (brass bass & string bass), Jock Jacobson (drums) unknown vocal. If vocal trio is present it will be Scott Wood, Jacobson and Whidden.

London, 3rd. April, 1930

MB-1156-1	Jack and Jill	voc?	Decca F1798
	(composed by Carlton & Whidden)		
MB-1157-1	In an old English lane	voc?	Decca F1724
MB-1158-1	Parisian doll (comp. Whidden)	voc?	Decca F1724
MB-1159-1	There's something about you that's different	voc?	Decca F1798
	(comp. Whidden & May)		
MB-1160-2	Just for a song - Selection Part 1		Decca F1723
MB-1161-1	Just for a song - Selection Part 2		Decca F1723

NOTE: From the Decca files= "Paid: £63"

The film "Woman to Woman", which opened at the Marble Arch Pavilion, London, on 18th. November, 1929, contained the tunes "Sunshine of my heart", "Parisian Doll" and "To you" all composed by Jay Whidden; he composed six tunes for "Song of Soho" and three for "Just for a song"

JAY WHIDDEN and his BILTMORE ORCHESTRA

Two unknown trumpets, trombone, two clarinets/alto saxes, Jay Whidden (leader, violin), another two violins Carl Fischer, (piano), unknown guitar, string bass, drums, vocal.

Los Angeles, 23rd. October, 1933

LA-75-A	I wanna meander with Mirandas	voc	American Brunswick 6688, DE F3819
LA-76-A	Many moons ago	voc?	Br. 6689, Decca F3820
LA-77-A	You're such a comfort to me	voc?	Br. 6689, Decca F3820
LA-78-A	Good morning glory	voc?	Br. 6688, Decca F3819

NOTE: Brunswick 6895, SOMEBODY CARES FOR YOU / DREAM OF ME, DARLING, TONIGHT, also exists from this period. There may be others.

JAY WHIDDEN and his PALAIS DE DANSE ORCHESTRA

George Dobson, Ken Coburn, Frank Arnold (trumpets), Geoff Turner, Charles Thompson (trumpets), Bob Gibson, Syd French, Viz McCarthy, Reg Lloyd, Tommy Crowe (reeds), Jay Whidden (violin, leader) Carlo Briglia (violin), Tod Foster (piano), Max Jordan (Guitar), Ossie Stanley (piano, tympani, vibes), Theo Walters (deputy conductor), Olive Lester, Sylvia Sefton (vocals) Bernie Duggan

(string bass), George Watson (drums).

Melbourne, 1938?

Can we keep a secret?

Televox M-4000

ELECTRIC PICKUPS FOR CYLINDERS

H. Custer

For years collectors of cylinder phonographs have electrified their reproducers by removing the reproducer diaphragm and connecting linkage, fitting a pickup cartridge of the monaural type on its side at the top and extending a bent wire from the needle holder of the cartridge to the needle of the reproducer. The cartridge was wired to an amplifier as usual. Sometimes the hose connection of the reproducer was cut off thus rendering it unfit to restore at a later date. In order to hear the two types of 4-minute cylinders and the two-minute cylinder, the usual procedure was to electrify three separate units.

About ten years ago I constructed an air coupling device in which the movements of the phonograph reproducer diaphragm were duplicated on the diaphragm of the ACD which in turn was tied in with a cartridge and connected to an amplifier. Results were at least comparable to the older method. The original equipment remained intact and the ACD would on any normal reproducer nose play any record. This is how I constructed the ACD. A small plastic measuring spoon about $1\frac{1}{2}$ inches in diameter was cut off about $\frac{1}{2}$ -inch from the bottom and a $\frac{5}{8}$ -inch hole cut in the centre of the bottom as shown in figure 1. The cup may be cut with a fine-tooth hacksaw, marking the cut line with a pencil or masking tape and rotating the cup as the saw cuts through it. The rough surface may be smoothed off by placing a sheet of fine sandpaper on a flat surface and moving the cup with the sawed edge against the paper, back and forth until the edge is smooth and true. The hole may be drilled by starting with a $\frac{3}{8}$ inch drill and finishing with a round file. A piece of $\frac{5}{8}$ -inch tubing, one inch long is used from time to time to check the hole size. When the tubing fits through the hole snugly, insert it a slight distance inside and run a ring of glue around it and let it dry. Next cut a piece of soft wood from $\frac{3}{8}$ stock as shown in Fig.2 and glue to cup as shown. Contact cement will enable you to complete the project without waiting for glue to dry but be sure to line up the parts accurately before contact is made. In this case place the parts on a flat surface and bring together. A rubber ring about $\frac{3}{16}$ -inch square is cut to length and glued to the rim of the cup as shown in Fig.3. Cut a diaphragm the diameter of this ring and glue together. Next make a wooden saddle from $\frac{1}{2}$ -inch wood stock and channel edge to allow a pickup cartridge to rest sideways. Place a wire bent at right angles into the needle holder of the pickup and with pickup in saddle on the wood extension, size the other end of the wire to rest a very short distance away from the diaphragm in the centre. Cement all parts and when dry place a drop of sealing wax on the end of the wire and the diaphragm. Fix or solder two leads about a foot long to the pickup and push through small holes drilled in the wood end as shown in Fig.4. Solder these in turn to a phono jack, place a piece of $\frac{5}{8}$ -inch O.D. soft rubber hose about two inches long on the tube of the device and the project is complete. To use, simply insert the open hose end on any reproducer. This rig is also a microphone and may be used as such by placing a small horn on the open end. Japanese pickups using a needle tightening screw are still available at small cost.

Further experiments convinced me that the best way to play cylinders and other hill and dale records was by using a pickup with stylus directly contacting the record grooves and I developed a fairly good system by turning a monaural crystal about 30 degrees on the side and bending the stylus holder to ride properly in the groove. This permitted the up and down vertical movements to properly activate the crystal. Using the regular 78 stylus with

which the crystal came equipped (3 mil) I found it excellent for Edisons, Pathés, etc. I use this set-up today but always look for a better method. I feel we are far from the eventual method of bringing out all that is to be found in the vertical-cut records. Right now I would like to see someone bring out some well-formed nylon styli in the various mil sizes. I feel that nylon has certain properties such as long wearing and self lubricating as well as being less hard from the conventional materials used during the past. It should be kind to old surfaces such as the soft brow wax cylinders.

My diagrams are on page 148

REPAIRING COLUMBIA TONEARMS

Ernest C. Allen

(Front-mount type)

Upon occasion one finds a Columbia Graphophone disc model where the tone arm is broken or cracked in one or more places. If it is only cracked it might just as well be completely broken as it may well become so in time. The first suggestion that comes to mind is to throw the arm out or to pass on the machine. Then, it may occur to the hopeful individual that the local welding shop on the corner may be able to make the arm as good as new or nearly so. However, welding aluminium is a very difficult and tricky business. Further it seems that in the old days aluminium castings were of impure and poor quality, at least not so good as today. Most individuals who do welding or brazing have had little or no experience with aluminium. In all probability any attempt to join the broken pieces by such technique will end in one of two results - either the pieces will be completely ruined or the repair will not hold. Then, too, if the repair is to be done at a place where there is lettering or design in the casting a repaired break must not show too badly. The arm may look so terrible that you are no better off than before.

Once the arm is broken it is just wishful thinking to believe it will ever be as good as new. However, an effective repair can be made by using liquid two-part epoxy glue and steel reinforcing pins. There are also one part industrial adhesives that are as thin as water and dry without showing. One is Eastman 910 Adhesive made by Armstrong Co. of Lancaster, Pennsylvania, USA. This appears ideal for many uses, the break is tight due to thin consistency of the liquid. But I have not used this adhesive on a tonearm as yet. With any glue the arm will not be strong enough to treat carelessly but then it was never so even when new. Let us say that the arm is completely broken in the middle. Perhaps the tonearm is one of the later ones and says, "Columbia" across it. Our break is right through the name. If it is a clean break and there are no chips missing this is fortunate. If there is a chip or two present these can be set in their proper position later. Steel reinforcing pins can be made from ordinary finishing nails obtained at the store.

Finishing nails are "headless" nails which have a recess in the end so that a nail can be used to force the nails below the surface of the wood and thus out of sight. You will cut off both ends of the nail to make a steel pin of uniform diameter. Three pins of equal length will be required for a single break. Pins are used for strength of repair and to prevent any tendency of the repaired arm to want to sag downward at the point of repair. If the repaired arm is mishandled and the break does open the damage may be worse than before. This is because the pins may bring some of the arm with them when they are forced out. So one must choose the better of the evils - glue and pins, or glue alone. It is doubtful if glue without pins has much real strength and when pins are used the surface area which comes into contact with the glue is increased and more distributed.

The object is to drill six holes so that three pins may be placed into the break evenly spaced with glue added. Naturally the edges of the tonearm pieces to be joined must be even all round. Thus, the holes for the pins are drilled larger than the pin diameter itself. Therefore, the pins can be moved around, or slip around inside the holes while the edges are evened up around the outside of the break for appearance.

Obtain two blocks of wood and place one of the broken tonearm halves in between the blocks and the whole in a bench vice. The jaws are tightened up against the blocks only enough to safely and firmly hold the tonearm casting in a vertical position with the damaged end up. The damaged end, is of course, rectangular in outline. Thus, within the rectangular outline you must drill three holes evenly spaced and not too close to the edge as the drill might cut out into the design on the outside surface and spoil an area of it. Obtain a punch and hammer. Use the centre punch to tap three points on the end of the break where the drill is to start. Remember the holes are to be evenly spaced and safely away from the edges. The size of the drill you select is not important within reason. You must get the three holes drilled in a given area of space, but it must be a fair amount larger than the diameter of the pins. When the repaired tonearm is properly set upon the machine it will be horizontal to the floor and so will the pins but each pin higher than the other. Each pin will be about $2\frac{1}{2}$ -inches long but the exact length is left to you and the particular requirements of the given situation. Each hole you drill should be a little longer than one half the length of a pin. If the pin is two inches long, each hole should be $1\frac{1}{8}$ -inches deep. You will drill six holes of the same diameter and depth, three of the holes being in each broken end. After using the punch drill the first three holes with your electric hand drill. It will be easy as aluminium is quite easy to drill but does tend to clog up the drill bit and must be cleaned out as you are drilling. Be cautious that the drill does not go out into the surface of the casting. Examine the broken ends and judge where the next three holes should be positioned in the second piece to line up with the first piece. Be careful to hold the drill vertically to avoid going out into the surface of the arm. Once the six holes are drilled remove all aluminium particles from the holes and place the three pins in. If the edges do not join you did not drill one or more of the holes deep enough, or the pin is too long, cut some off. Suppose the edges of the break join but are uneven. The holes were drilled oversize to allow the edges to line up evenly. But, you can take the pin out that may be the problem pin and bend it a little. Thus the bent pin can be moved in a clockwise to counterclockwise manner while you attempt to line up the outside edges for the requirements of appearance. Only after the break is even at all edges and closed do you think about adding the glue! Do not mix and put on the glue prematurely.

After the edges are even and the appearance requirements satisfied you can mix the glue. Use only the better epoxy glue or industrial adhesive. If it is a two-part epoxy mix only what you intend to use right away. Pour the liquid into each of the six holes and spread it evenly over the surface area of both broken ends. Close up the break and remove the excess glue that comes out of the crack. You drilled the holes deeper than the length of the pins partly to provide a place for the surplus glue to go. Check the edges to see that all are even and the crack is closed tight. Clamp the repair between two long blocks with C clamps. Be quite certain the two pieces of the tonearm follow a straight line. You

arm lower than the other, or similar error, when you place the repaired arm back on the machine. The glue will then be dry and it is too late to change. A toothpick is handy for mixing two-part epoxy glue. Keep the tonearm clamped for about a week.

133

I have successfully repaired a tonearm that was broken in three places, by this method. In one place a chip was lost and plastic aluminium was used and when dry was polished to blend with the remainder of the arm. One break was in the end where the reproducer must pass through the arm but this was repaired using the same method outlined above but with minor change. Three pins, of course, had to be small and bent to contour. The repairs can be seen but only on close examination and are not displeasing to the eye. I have no idea as to the strength of the repairs as the only way to find this out would be the hard way. The strength does not have to be overly great. A repair to a winding crank, for one example, would have to be strong. A tonearm repair with the above method should last with normal treatment. It is not subject to the forces exerted upon a crank. Torques areaa study for the physicist or engineer and I am not prepared to cover a technical discussion.

LETTERS

Dear Mr. Bayly,

I am very sorry indeed to take up cudgels with such a well-known correspondent as Mr. Hurst (Talking Machine Review, No.3 April, 1970, page 89), but take them up I must in the matter of the Farrar-Caruso 'Butterfly' recording. The initial story, and more so the various ramifications, emendations, and additions to it, is so ridiculous and wornout that it alone needs no further comment from serious people. But Mr. Hurst's new assertion that there were two recordings (i.e., takes) made at the same session is positively NOT true.

For some time now, I have been associated with a group working on the transcription of the original data from the old Victor Talking Machine recording books, still preserved in New York. Eventually this data will be published for the use and benefit of all scholars. The lists will contain complete and detailed information about all published and unpublished 'takes' of all 7, 8, 9, 10 and 12-inch Victor records made from the turn of the century until the end of the 78 rpm disc, from the Victor "laboratories" in New York, Camden and other major cities. The lists by matrix number have already been transcribed, and are being edited through 1917; the chronological lists of recording sessions have been completed through December, 1923, after Caruso's death. The accuracy and detail maintained in the recording books and associated files through the years is something fantastic. Even trial recording sessions are listed, as well as special private recordings not given regular numbers. I mention all this to show I am not merely speaking from hearsay when I assert that there was only one version of the first act Madame Butterfly duet by Geraldine Farrar and Enrico Caruso. The record, matrix number C-6026-1, was cut in New York on 10th. March, 1908. It was NEVER remade, on that date or any other. If it had been, there would be a written record of it, believe me.

For Heaven's sake, let us put this old chestnut to rest once and for ever!

Sincerely, W. R. Moran.

Dear Mr. Bayly,

I have found some additional Edison Bell cylinder information which is not included in the numerical catalogues published by Mr. Sydney H. Carter.

The information, found in the 'Talking Machine News' indicates that the Company issued cylinders alater than is supposed.

January 1914.

20364 The Rosary .
20365 On the Mississippi
20366 The trail of the lonesome pine

Robert Carr
The Elliotts
The Elliotts

20367	You made me love you	J. Wallis
20368	You're my baby	The Elliotts
20369	When love creeps in your heart	Robert Carr
20370	When the midnight choo choo leaves for Alabam	The Elliotts
February 1914		
20371	Snooky Ookums	Ted Yorke
20372	Take me to the Swanee shore	Ted Yorke
20373	Have you seen our John?	Jack Charman
20374	Take me in your arms and say you love me	Ted Yorke
20375	Jerry Jeremiah	Jack Charman
20376	Way down south	Ted Yorke
20377	Hold your hand out naughty boy	Jack Charman
20378	It's a long way to Tipperary	Jack Charman
20379	I wish it were Sunday night	

All good wishes, Karlo Adrian

Dear Mr. Bayly, Many thanks for the latest issue of the magazine. The reproduction of the RWS label came out well. It is odd to note that the three words of this label read, in Swedish, as the sentence "Rolf Wins success".

The article on JAY WHIDDEN was outstanding. We need more well-researched articles like this. I would like to make two small additions. First, the Whidden orchestra visited Stockholm between 16th and 31st August, 1929, and during that period played at two restaurants, made some broadcasts and also made guest appearances in Ernest Rolf's revue at the China Theatre. Secondly, the Whidden orchestra made at least fifty recordings in 1928 and 1929 exclusively for the Swedish market. These were issued in the Imperial's Swedish X series. Some were instrumentals, some by Swedish singers accompanied by Whidden's band and all the tunes were Swedish popular tunes of the day.

A correction to my article on Scandinavian HMV. I am grateful to Mr. Bruun for pointing out that the correct description of the label colour of the HMV X series is PLUM. To me they appear red! (See Talking Machine Review, February, 1970, page 56).

Sincerely, Björn Englund

THE HMV - DG SEPARATION

Björn Englund

As far as I know the full story of how Deutsche Grammophon was broken away from the Gramophone Company has not yet been told in all its details. Nor is it my intention to do so in this short article. It is my hope that the legal documents reproduced overleaf will help to fill out the picture.

In 1918 the Polyphon Musikwerke in Leipzig purchased the Deutsche Grammophone company of Berlin and Hannover. It was offered for sale by the German State, having been confiscated during World War I. After the War this sale was declared illegal by the Versailles Treaty, and Deutsche Grammophon was to return all non-German masters to Hayes, which it refused to do. Fred Gaisberg's autobiography (page 77) states: "Negatives stored in the archives of the Hannover factory were returned to the English Company under the terms of the Treaty of

136A

Versailles. Even so, some valuable 'masters' like those of Willy Hess, Leopold Demuth, Leo Slezak, as well as important Russian, Arabic and Turkish matrices still remain untraced."

The DG company not only refused to return many of its foreign masters, it also pressed and sold them both in Germany and abroad. As late as in the 1929 Polydor (export) catalogue there are listed several acoustic recordings made outside Germany and to which they had no rights. There was the rather short-lived "Opera" label which was used mainly for exports to USA.

In my research on this Company I found two interesting documents from 1920. Copies of them were circulated to the record dealers in Scandinavia in November, 1920, to prove that the local HMV agencies were the rightful agents for the Gramophone Company. Deutsche Grammophon was at this time trying to prove that it was the sole owner of the "Gramophone" trade mark in Scandinavia. I give the documents in their original form and hope that John Want will be able to translate the legal German into something like legal English.

(Editor's note: Mr. Want's translations are under the relevant document. Some words do not translate readily and straightforwardly into English without precise knowledge of what the documents referred to, for they are somewhat "lifted out of context". We have done our best)

Der Minister für Handel und Gewerbe
J. No.II b, A, 830

Berlin W.9. den 9, April, 1920
Leipzigerstrasse 2

Sofort

Auf Grund des & 2 des Gesetzes, betreffend Enteignungen und Erschädigungen aus Anlass des Friedensvertrages zwischen den alliierten und associierten Mächten von 31. August, 1919 (RGL. S. 1527), werden mit Zustimmung des Herrn Reichminister für Wiederaufbau die 39,695 Original-matrizen für 25 cm Schallplatten und 6,304 Original-matrizen für 30 cm Schallplatten, die Sie seinerzeit von der The Gramophone Company, Ltd. in Hayes, vertreten durch den Liquidator der Gesellschaft, Geheimer Kommerzienrat Lucas, erworben haben, zu Gunsten der The Gramophone Company, Ltd. in Hayes, vertreten durch Ihren Bevollmächtigten J. P. Jones in Wannsee, Otto Eriksstrasse 9, enteignet. Die The Gramophone Company, Ltd. erwirbt unter Erlöschen der Rechte Dritter an den bezeichneten Gegenständen des Eigentum mit der Zustellung dieses Bescheides, sie ist gemäss & 3 desselben Gesetzes berechtigt, jederseits die Herausgabe der Gegenstände zu verlangen. Bis zur Herausgabe sind die enteigneten Gegenstände pfleglich zu behandeln. Die Festsetzung der Entschädigung wird erfolgen, sobald die in & 6 des Gesetzes vorgesehenen Richtlinien erlassen sind.

J A

gez. Neuhaus

An die Polyphonwerke A.G. hier S.W. 68, Markgrafenstrasse 76.

From: The Minister for Trade & Industry
J. No.II b, A, 830

Berlin W.9. 9th. April, 1920
Leipzigerstrasse 2.

To: Polyphonwerke A.G. Berlin S.W.68, Markgrafenstrasse 76

Forthwith

Under Para.2 of the Law concerning expropriation and reparation arising from the Peace Treaty between the Allied and Associated Powers of 31st. August, 1919 (RGL. Para 1527) the 39,695 original matrices for 25 cm records and 6,304 original matrices for 30 cm records which you have at some time acquired from The Gramophone Company, Ltd. of Hayes, represented by the Liquidator Confidential Adviser Lucas, are expropriated with the consent of the Reich Minister for Reconstruction in favour of the Gramophone Company, Ltd., of Hayes, represented by their Delegate General J. P. Jones of Wannsee, Otto Eritsstrasse 9. With the delivery of

this instruction The Gramophone Company, Ltd., of Hayes, acquires the title to the designated articles under expiration/lapse of rights of third parties and is entitled according to Para. 3 of the same law to request extension of the restitution at any time. Until the restitution, of expropriated articles are to be treated with care. Settlement of the indemnity will follow as soon as the provisions in Para 6 of the law have been fulfilled/complied with.

J. A.

gez. Neuhaus

Der Minister für Handel und Gewerbe

Berlin, den 28. August, 1920

J. Nr. 11 b A 2030

Auf das Schreiben vom 24. d. Mts.

Sofort

Nachdem die Deutsche Grammophon Aktiengesellschaft sich geweigert hat, zu gunsten der Gramophone Company, Ltd. enteigneten Originalmatrizen und Papphulsen herauszugeben, ist der Regierungspräsident in Hannover angewiesen worden, Strafanzeige gegen die Mitglieder des Vorstandes der Gesellschaft zu erstatten und die Herausgabe im Wege des Verwaltungswangsverfahrens zu erzwingen.

Ich habe dem Regierungspräsident mitgeteilt, dass Generalvollmächtigung der Gramophone Company, Ltd. selbst an dem Tage, an dem die zwangsweise Herausgabe erfolgen soll, in Hannover mit den nötigen Leuten und Kisten sein wird, um die Originalmatrizen in Empfang zu nehmen

J. A.

gez. Neuhaus

An den Herrn Rechtsanwalt D. Hermann Isay, Berlin W.

Forthwith

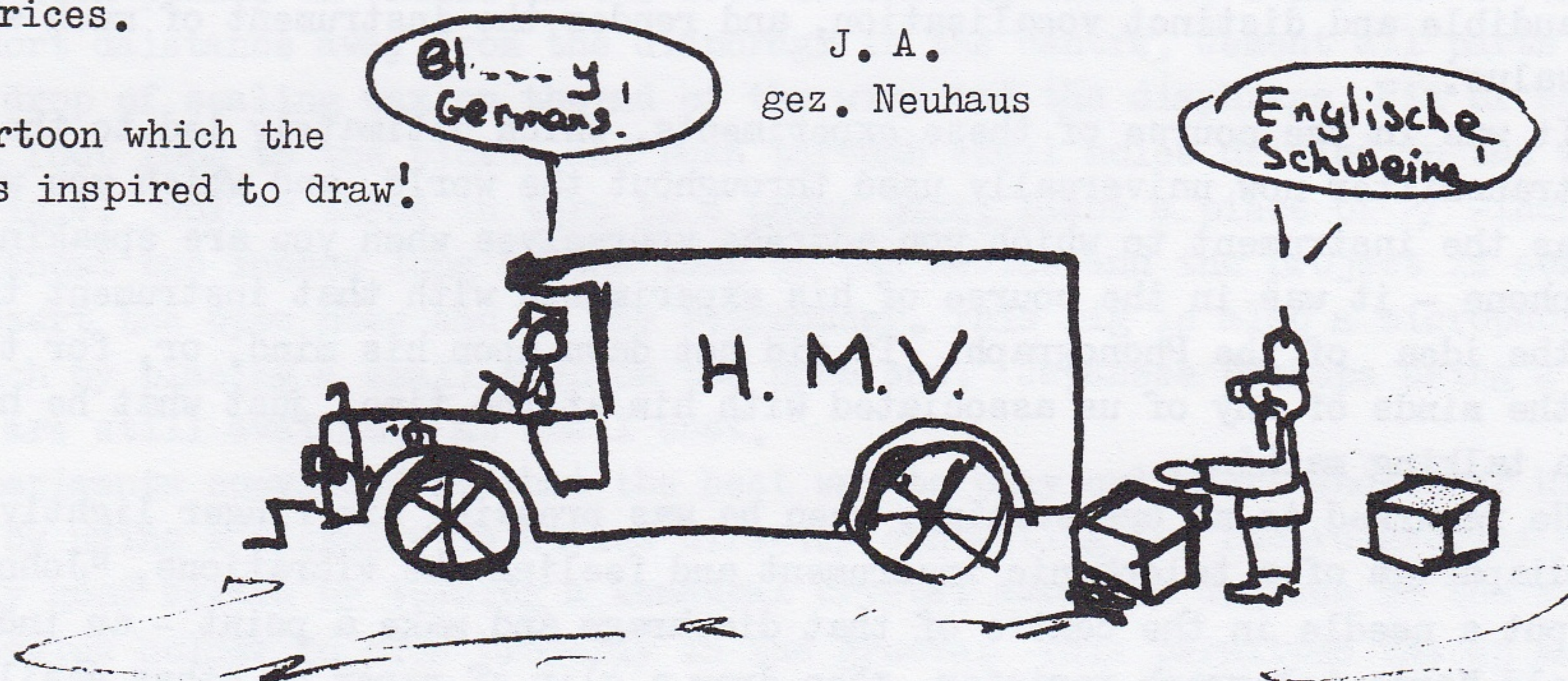
The Deutsche Grammophon A.G. having refused to surrender to the Gramophone Company, Ltd. expropriated original-matrices and cardboard shells(?sleeves. i.e. something made from papier maché, says our translator), the President of the Government in Hannover has been instructed to bring a criminal charge against members of the Board of that company and to enforce restitution.

I have notified the President of the Government in Hannover that the Delegate General of the Gramophone Company, Ltd. is himself to be present on the day on which compulsory hand-over takes place, together with the necessary boxes and people, in order to take possession of the original-matrices.

below is a cartoon which the translator was inspired to draw!

J. A.

gez. Neuhaus



It is interesting to read old books and magazines and try to feel the impact that the invention of the Phonograph must have had upon the people. We are so sophisticated with our planes, refrigerators, televisions, etc., that it is very difficult to imagine the "shock" and wonder of the news that the voice could be permanently stored for future listening.

A reader has sent us a photostat copy of the pages of "The Youth's Companion" for 10th. January, 1878, which includes a paragraph upon the Phonograph:-

ANOTHER WONDERFUL INVENTION

"Probably most people who have heard of the marvellous powers of the telephone have thought that after this, no improvement upon it can be discovered. Yet, almost before we have begun to accept the telephone as a fact, another invention fairly eclipses it.

"Mr. Thomas A. Edison has invented a machine that records speech, and that can be made to reproduce the same language, just as it was pronounced, days or years afterwards.

"This machine he calls the talking Phonograph, because it records or writes (graphs) the sound(phon) spoken into its mouthpiece, and repeats the sound in an audible tone at the pleasure of the operator.

"We shall not attempt a description of this machine which would not be clear without diagrams; but we may say that its principles is like that of the telephone, so far as it is based upon the transfer of sound from one diaphragm or plate of metal to another similar plate.

"The value of this Phonograph may be very important, but the machine can hardly be put to so many practical uses as the telephone. Still, it is not at all inferior, even to Prof. Bell's instrument, as a marvel and triumph of human inventive genius".

Mr. Lewis Young, who as a manager in Edison's London branch, under Colonel Gouraud c.1890 wrote a little book titled "Edison and his Phonograph" which he published in that year. We have been loaned a copy by Mr. Melvin Harris and below quote from pp. 20-23, where Mr. E. H. Johnson, who was working with Edison in 1877, gives some personal recollections.

"When Prof. Bell brought out the telephone, with which you are not only familiar but which your children now know, Mr. Edison conceived the idea of amplifying the voice of the telephone, so to speak, by producing a transmitting apparatus which would generate a much stronger current than Mr. Bell's instrument as a receiver, produce a much more audible and distinct vocalisation, and render the instrument of much wider commercial value.

"It was in the course of these experiments, which ultimately led to the carbon transmitter now universally used throughout the world, and which you will all recognise as the instrument to which you address yourselves when you are speaking in the telephone - it was in the course of his experiments with that instrument that he conceived the idea of the Phonograph. It did not dawn upon his mind, or, for that matter, upon the minds of any of us associated with him at the time, just what he had done - produced a talking machine.

"He remarked to me one evening, when he was pressing his finger lightly against the diaphragm of a telephonic instrument and feeling the vibrations, "Johnson, if I were to put a needle in the centre of that diaphragm and make a point - an indenting point on the old Morse telegraph register, then draw a slip of paper or other easily impressed

"substance underneath the needle, the vibrations of that diaphragm would be accurately recorded on the paper."

"Being an old telephone operator myself, I immediately saw the force of that apparently not very sage remark, and I said, "Certainly, but what of that?". "Well," he said, "if we take that paper and start afresh with it, and draw it under the point of that needle or diaphragm, put a slight tension upon it and pull the needle, it will follow the ins and outs of these indentations ~~that~~ naturally would be in the diaphragm precisely as it did move when it made the original indentations." I said, "That's true, but what of it?"

"Well, only this: that would be a telephone repeater. Of course, if I speak in the telephone, and that produces a vibration on the receiving telephone's diaphragm, the receiving instrument is made to record these indentations on this piece of paper and that paper is afterwards drawn under the needle, the diaphragm is re-vibrated, without the action of the human voice, I have only to make that second diaphragm another transmitter and I will carry my message on again to another station. Thus, instead of telephoning within the limits of the capacity of a single instrument, I will telephone to those limits, and then automatically repeat the speech over another circuit to the limits of the second circuit. In other words, I will make a telephone repeater that will be the exact counterpart of the telegraphic repeater so well-known in general use." I said, "It looks feasible: it looks practicable". That was the end of it for the time being."

The narrative later resumes..... "I had to strike out in some new direction; and it occurred to me that it would be a very good idea to go around to the leading watering-places, it being summer time, and exhibit Edison's telephonic apparatus, particularly the musical telephone, describe it to the public, and to those who seemed very much interested in those acoustic experiments of Mr. Edison and Mr. Bell at that time, and make a little money in that way. I did it by having my singers stationed in the Western Union Telegraph Building in New York, having my receiving apparatus in a house like this at Saratoga, Buffalo, or Rochester, four or five hundred miles distant from New York, and reproducing the voices of these singers to my audiences at those distant points. It was very successful. A great interest was being aroused in the subject just at that time.

"In the course of my lectures, or improvised talks, it occurred to me that it would be a good idea to tell my audience, at Buffalo, about Edison's telephone repeater, which I did. My audience seemed to have a much clearer appreciation of the value of the invention than we had ourselves. They gave such a cheer as I have seldom heard. I did not comprehend the importance of the device at the time; the next morning the Buffalo papers announced in glaring headlines "A great discovery: A Talking Machine by Professor Edison. Mr. Edison's wonderful instrument will produce articulate speech with all the perfections of the human voice". I realised for the first time that Edison had, as a matter of fact, invented a talking machine.

"Realising that, and having had sufficient experience by this time to profit by such things, I made a special point of this feature in my entertainment, which was at Rochester, and I had a crowded house - one that did my heart good - and my pocket too. That satisfied me that I had better go home and assist in perfecting this instrument. I knew from my own experience in the matter that it was a comparatively simple thing to

"so I cancelled thirteen engagements and went back home with these newspaper clippings. I went straight down to the laboratory, which was then in Newark, and I said, 'Mr. Edison, look here. See the trouble you have got me into.'"

"He read these things over and said, 'That is so, they are right. That is what it is - a talking machine.' I said, 'Can you make it?' He said, 'Of course. Have you got any money?' I said, 'Yes, I have a little', and I had - a little. He replied, 'Go to New York, and get me three feet of stub steel an inch and a half in diameter, and get a piece of brass pipe four inches in diameter and six or eight inches long, and we will make it.'"

"I took the next train to New York and got the material, and took it back and went to work. Within twenty-four hours we had a little revolving cylinder with a crank and a simple diaphragm needle, wrapped a sheet of tin-foil around the cylinder, and gave it the original phonographic sentence, 'Mary had a little lamb'. Then we set it back to see what the instrument was going to do about it. It came out to our entire satisfaction. Not as clear as it is today, but it was 'Mary had a little lamb' sure enough. And thus the phonograph was born."

Editor's note: This account might be called a variation on a theme for it gives another account of the invention of the phonograph.

140 MONTGOMERY WARD CATALOG 68, 1900-01 Ernest C Allen

The Montgomery Ward catalogue 68 has quite an extensive phonograph listing. Edison Phonographs are represented by the "improved" Gem in oak case for \$10. A ten-inch japanned horn was standard equipment or for an additional charge one could have a 14- or 18-inch brass horn. The 18-inch horn would be supported by a crane.

The Edison Standard Phonograph was offered for \$20. The case was oak and the top was held by four hinges to the lower cabinet portion. A 14-inch brass horn was the usual equipment. Two other "package deals" were offered for those would be entrepreneurs who wished to give public concerts.

The Edison coin-slot model H Phonograph was a table model which sold for \$50. It required a nickel for operation. The upper works were enclosed in glass and the lower oak case contained the motor and the coin drawer. It was spring operated. Edison's Home Phonograph was offered for \$30 with a 14-inch brass horn. Three outfits were available to the entrepreneur. The Edison Concert sold for \$75 with floor stand and 24-inch brass horn.

Graphophones offered included the type AT in ornate case for \$25. The AG Grand sold for \$50 and there is no mention of the GG Grand. Polyphones are offered in four types. The first is an adaptation of Edison's Gem and was called appropriately enough the "Gem Polyphone". The "Home" and "Standard" Polyphones were similar adaptations of Edison "Home" and "Standard" Phonographs. The Standard Polyphone sold for \$25 and the Home version sold for \$35. Two 14-inch brass horns would be used with each machine except the "Gem" Polyphone which had two 10-inch japanned horns. The "Polyphone Concert" was hailed as the "loudest talking machine made." One stand with the upper portion shaped like a letter "S" stood on the floor and supported two 24-inch brass horns. The machine was an adaptation of an Edison Concert and it sold for \$80. One could also purchase the Polyphone attachment by itself and do his own conversion.

This catalogue also contains a drawing of the "latest improved 1900 model" Berliner's Gramophone. This model is called number 18 and featured a japanned horn and vertical crank for winding. The case was oak and the price \$18. One could also purchase Gramophone number 25. Number 25 used a brass ghorn and is said to have a superior form of motor and finer made case than the \$18 model. This model sold for \$25. Two exhibition outfits were available to the entrepreneur. Horns for the gramophone came in three types. The japanned horn was 18-inches long and had a ten-inch bell. It sold for 90 cents with leather elbow. The brass had the same length and width sold for \$2.50. A "Lenene" horn likewise was of the same size and sold for \$2.90 with elbow. I presume the "Lenene" horn was made of linen but cannot account for the divergence of spelling. Edison used a composition linen horn for recording and another with wide flaring bell for use with the "Fireside" model. This was called a "Linenoid" horn. The Fireside type came in three colours. At any rate, back to the subject of catalogue 68. The Berliner is offered for \$2 so collectors intending to offer one please take notice of the price when new. Curiously, this so-called "Exhibition" soundbox is mentioned as equipment for the model 18 Gramophone but not mentioned for the number 25 Gramophone. I strongly presume that the same reproducer was used on both models. Gramophone records are available for \$5 a dozen and a small listing of titles is given. Two Gramophone record cabinets are offered at \$1.25 and \$2.50.

EDISON DISC MASTERS

RAYMOND WILE

I have worked on the Edison files for years and have many pieces of work at various stages of completion. One project concerns the master ledgers of the early period. I have reconstructed virtually all of the entries from several sources, such as master listings, card listings, notebooks, Edison comment books, cash books, etc. Where available I have indicated present condition, and/or, information concerning the present disposition of the recordings. By 1912 the information is much more complete and useful. By publishing this we would give accurate and carefully researched information concerning the discs. I wish to note that the listing only includes material assigned master numbers.

In the case of the twelve-inch recordings only one master take was usually processed, especially after the Company standardised on ten-inch discs. During the 1920's many tests were made up (possibly as "potential" raw-material for the long-playing Edison discs). The surviving documentation is bad; being notebooks, card files, and ledgers are woefully incomplete, but fortunately each compliments the other. A few shipping lists survive for the London records in 1913. It is difficult to sort out band recording dates.

The listings are more complete than any one Edison source since they represent a consolidation. While there is a possibility of errors as the material was taken from various sources, I believe the proportion to be low.

NOTE: At the beginning, discs were prefaced by the letter D. Takes were known as "specials". Recording dates are almost non-existent. New York should be assumed as the venue of recording unless otherwise stated.

Editor's note. Mr. Wile originally began his listing here, but started again later after finding much new material. Thus readers are asked to turn on to Talking Machine Review No. 7 page 185 where the pictorial material in that issue is described, and to page 72 of No. 11, where the listing of records begins.

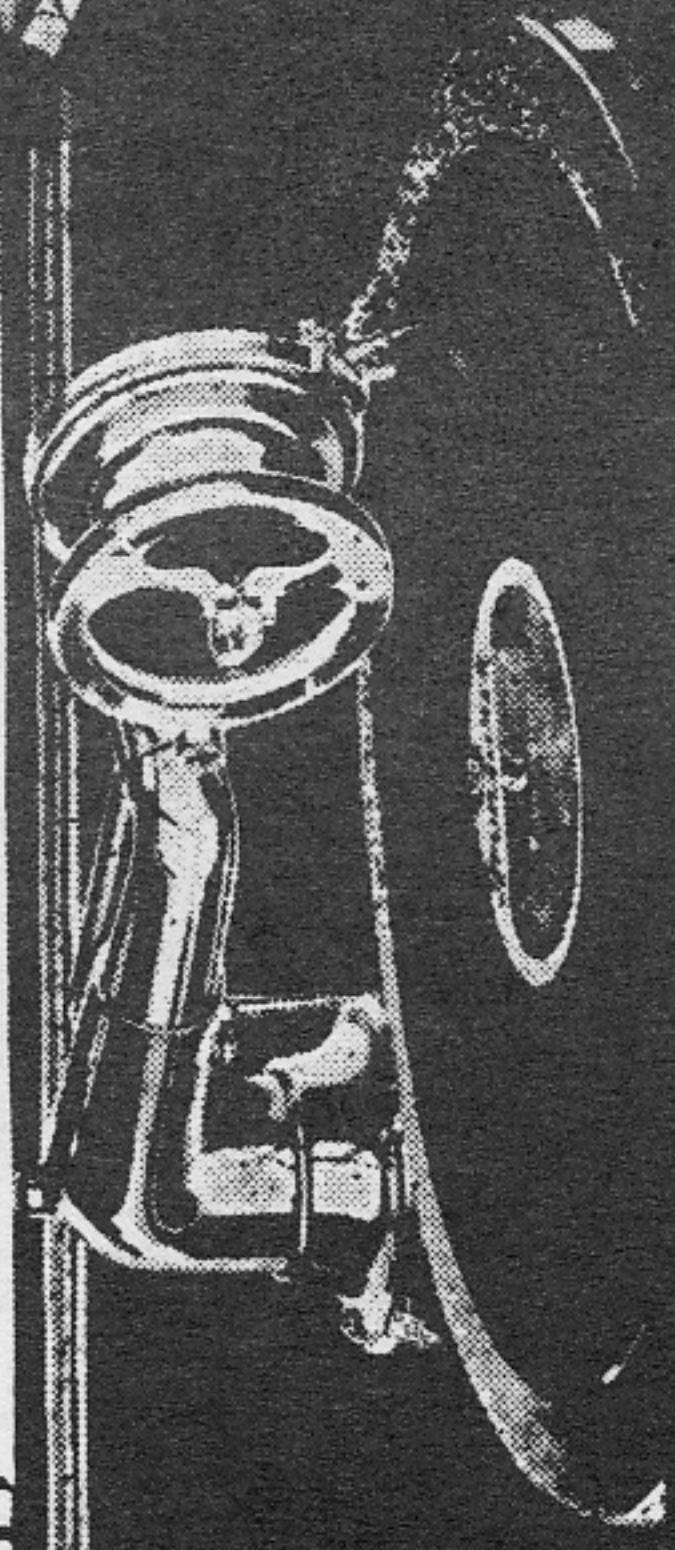
Mademoiselle Lepinoy, who performed in the
cafés-concert of Paris in the late- 1890's.



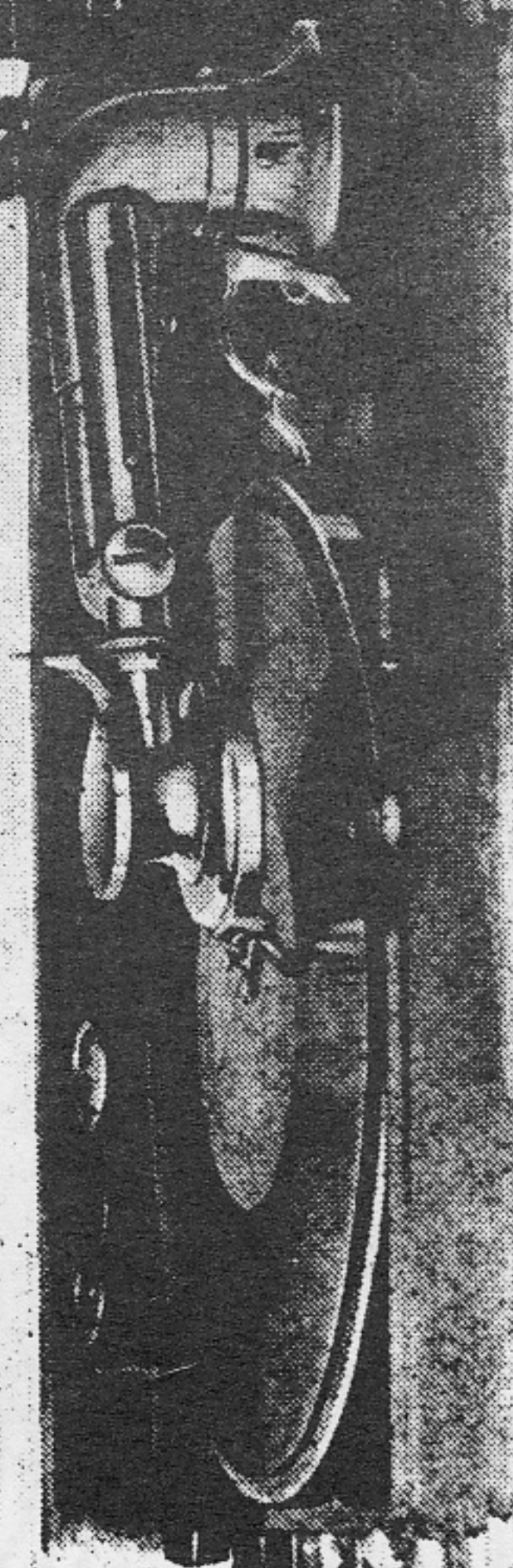
The Talking Machine Review-International
19.Glendale Road, Bournemouth BH6 4JA, England.

The Brunswick "Ultona"

Just a turn of the hand presents to any make the correct position on the record, the proper needle and diaphragm, and the pressure necessary to play that particular record at its best



The Brunswick "Ultona"—
double diaphragm model—
playing Brunswick record.



The Brunswick "Ultona"—
single diaphragm model—
playing Pathe record.

Three Exclusive Brunswick Features

The Brunswick "Ultona" Reproducer plays all records at their best—a turn of the hand adapts it to any make of Record.

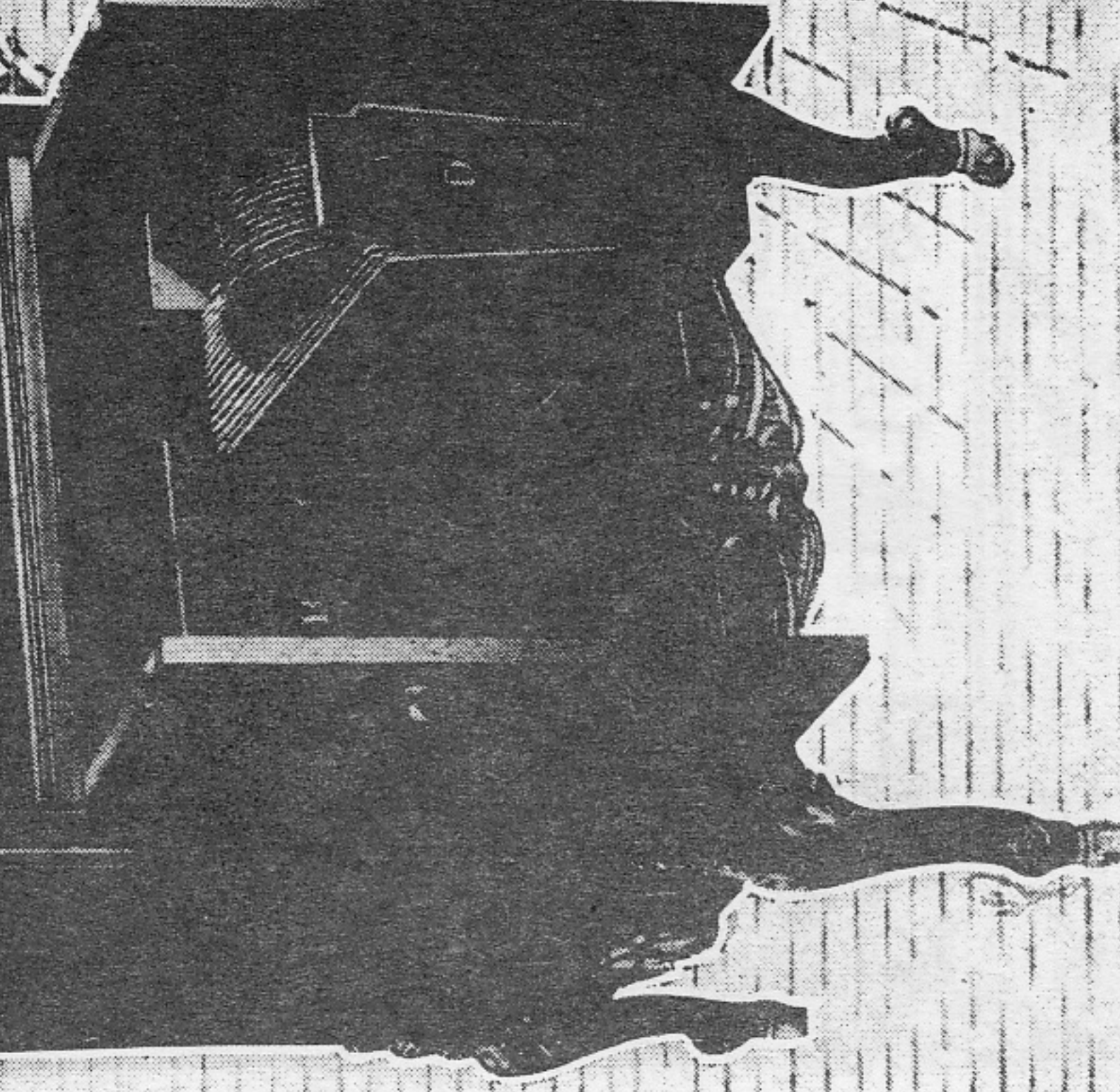
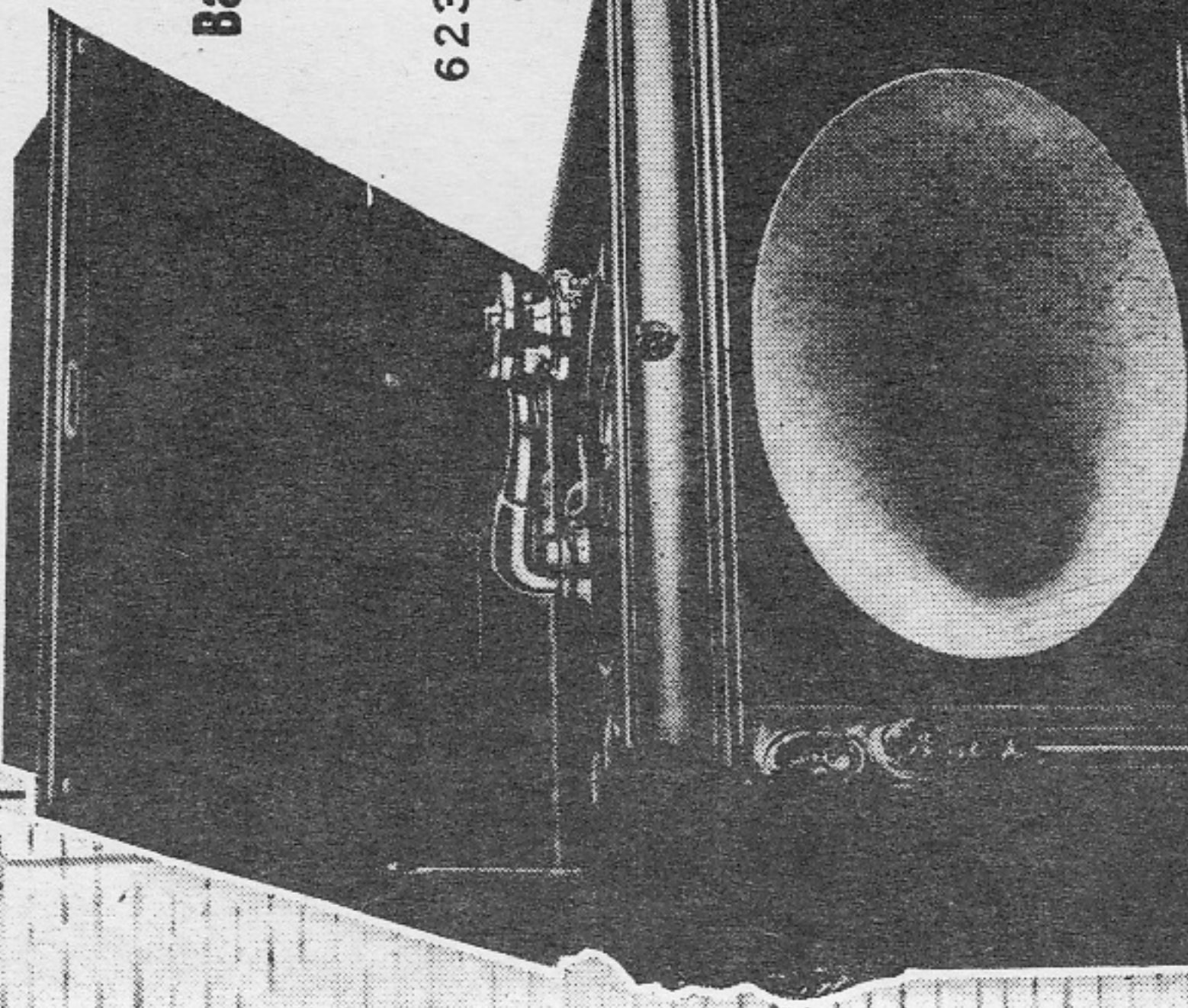
The Brunswick Oval All-Wood Tone Amplifier—a valuable aid to perfect tone reproduction—in all cabinet instruments.

The Brunswick Record Filing System, with convenient arrangement of drawers and records—in all the larger cabinet instruments.

**The Brunswick-
Balke-Collender Co.**

GENERAL
OFFICES:

623 So. WABASH AVE
CHICAGO

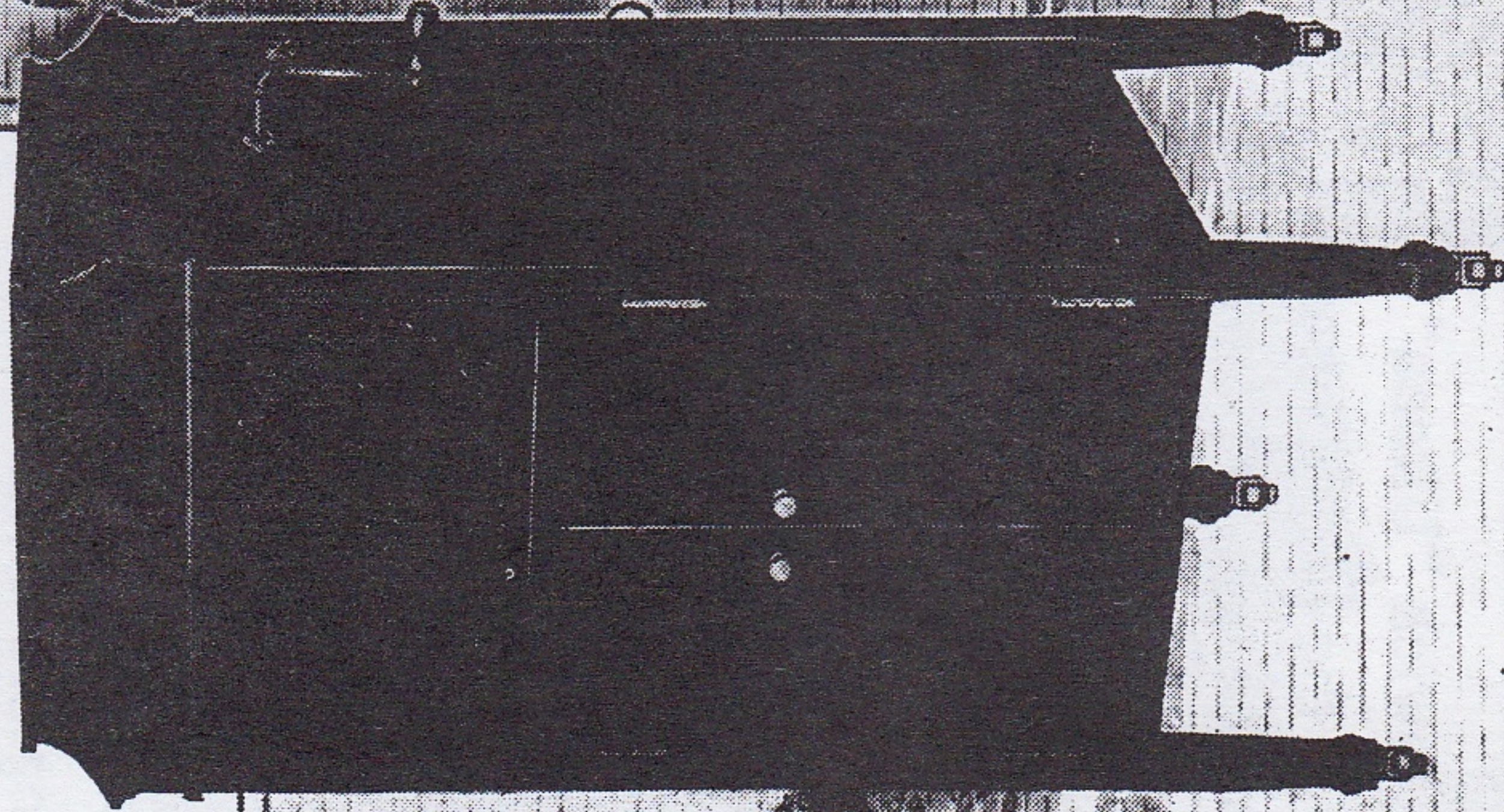


BRUNSWICK

Mahogany and Oak \$150

HHEIGHT, 45 inches; width, 19 inches; depth, 21 inches. Equipped with newly developed Single Diaphragm Ultona all-record Reproducer and the new oval all-wood Tone Amplifier. Strong double-spring motor. Twelve-inch turntable. Automatic stop. Trimmings nickel-plated. Shelf filing system.

STYLE
"110"

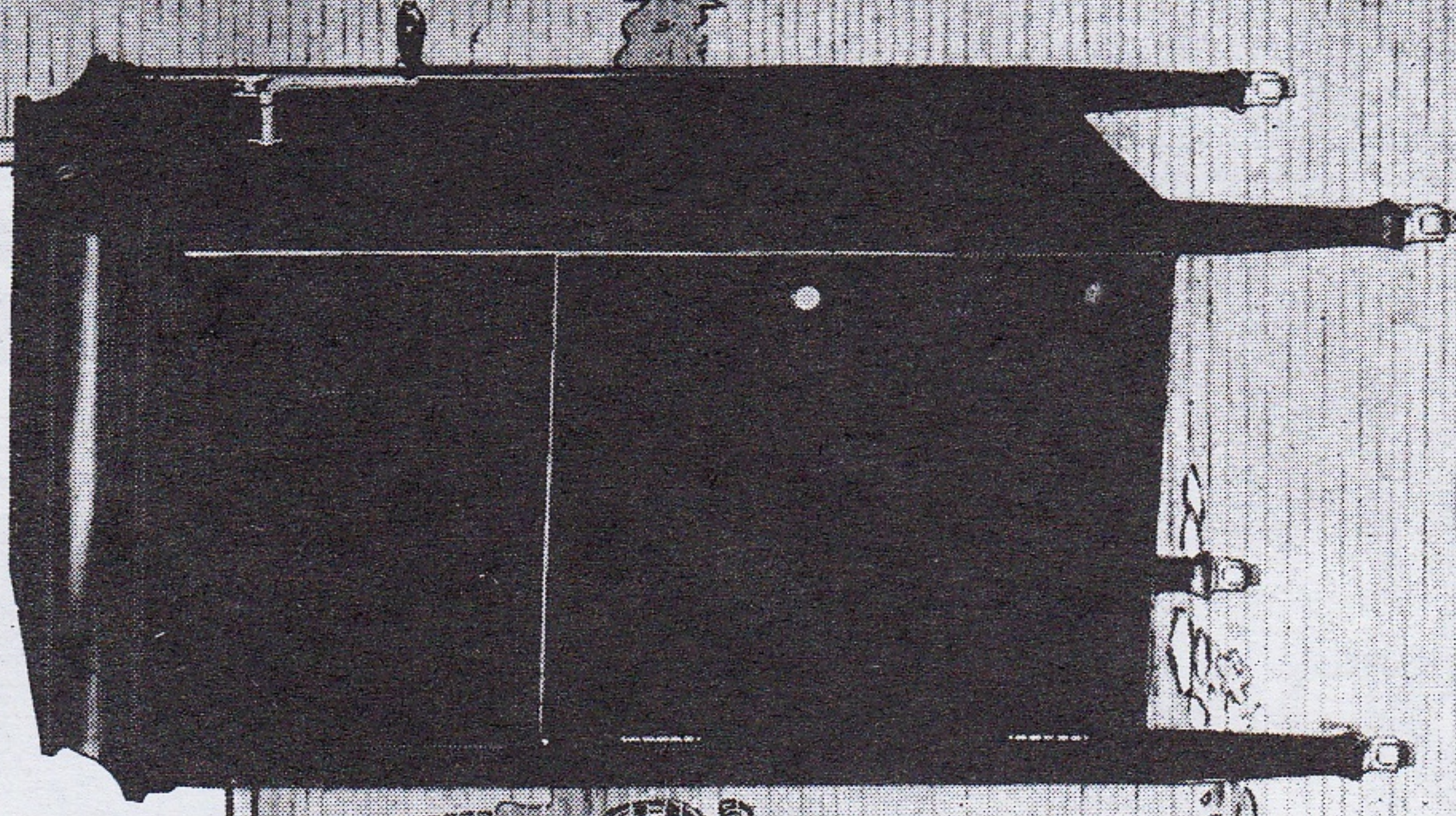


BRUNSWICK

Mahogany and Oak \$125

HHEIGHT, 43 inches; width, 19 inches; depth, 21 inches. Equipped with newly developed Single Diaphragm Ultona all-record Reproducer. Oval all-wood Tone Amplifier. Tone modifier. Strong double-spring motor. Twelve-inch turntable. Automatic stop. Trimmings nickel-plated. Shelf filing system.

STYLE
"107"



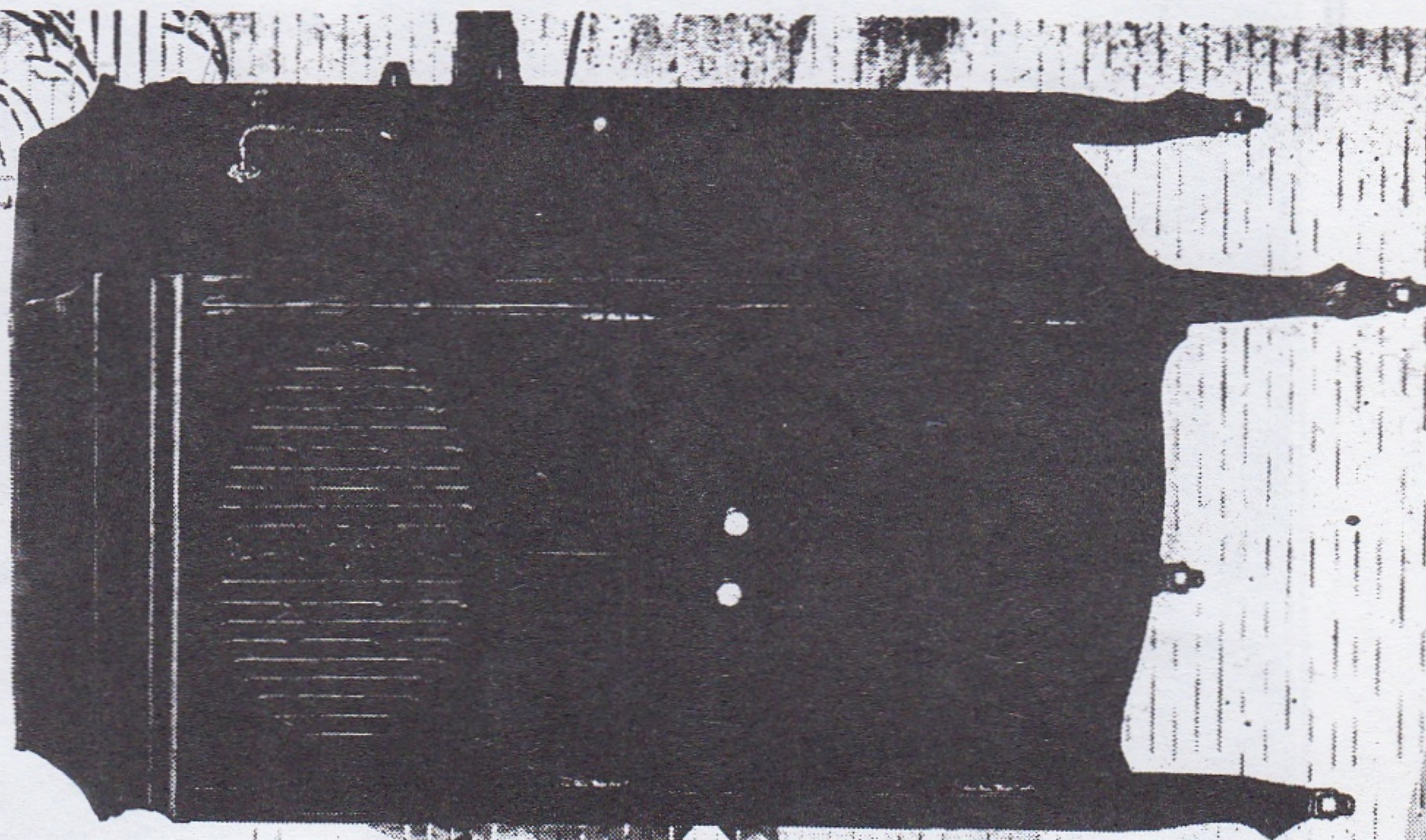


BRUNSWICK

Mahogany and Oak \$200

HEIGHT, 47 inches; width, 20 inches; depth, 21 inches. Equipped with newly developed Ultona all-record Reproducer and the New oval all-wood Tone Amplifier. Tone modifier. Strong double-spring motor. Twelve-inch turntable. Automatically balanced top. Automatic stop. Trimmings nickel-plated. Seven 12-inch albums for filing all makes of records.

STYLE
"112"



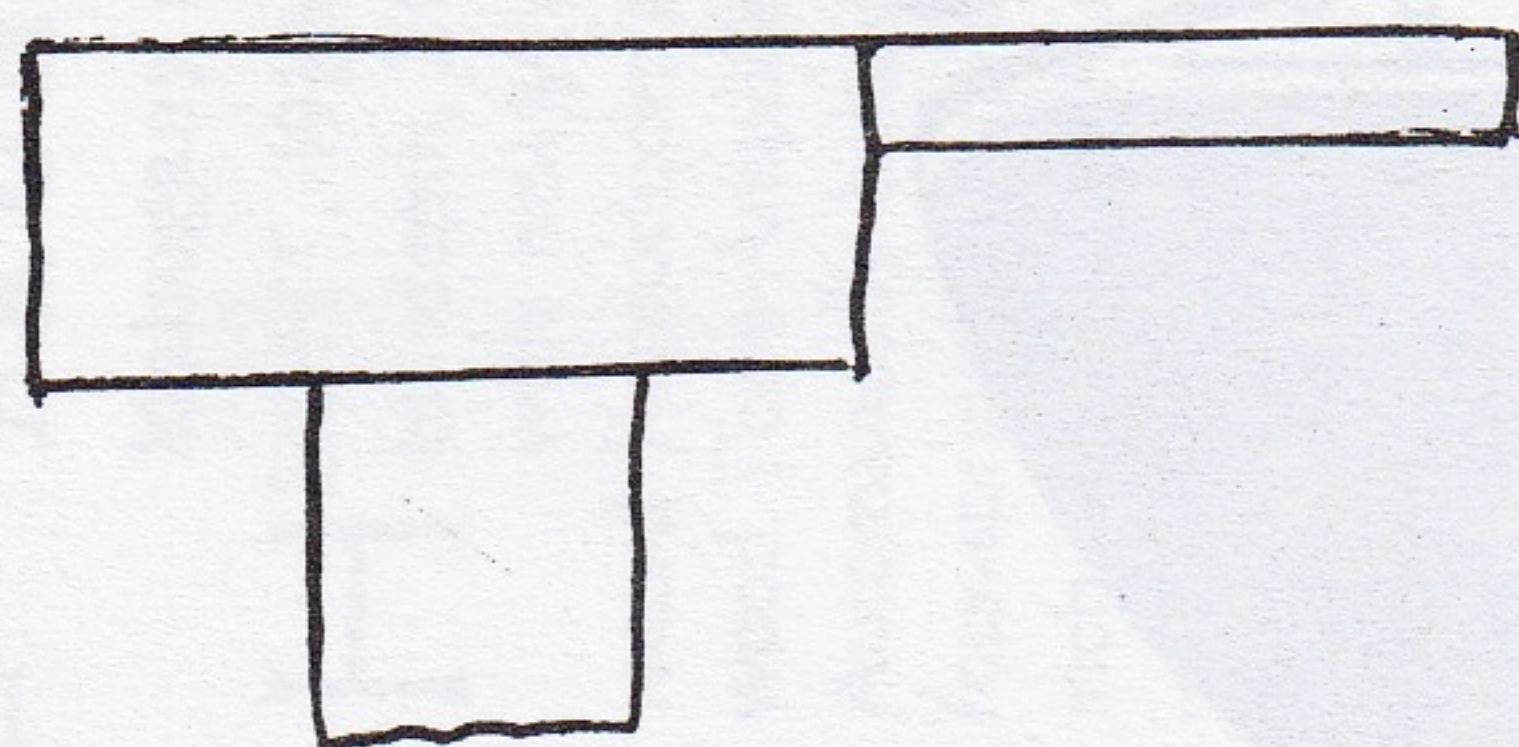
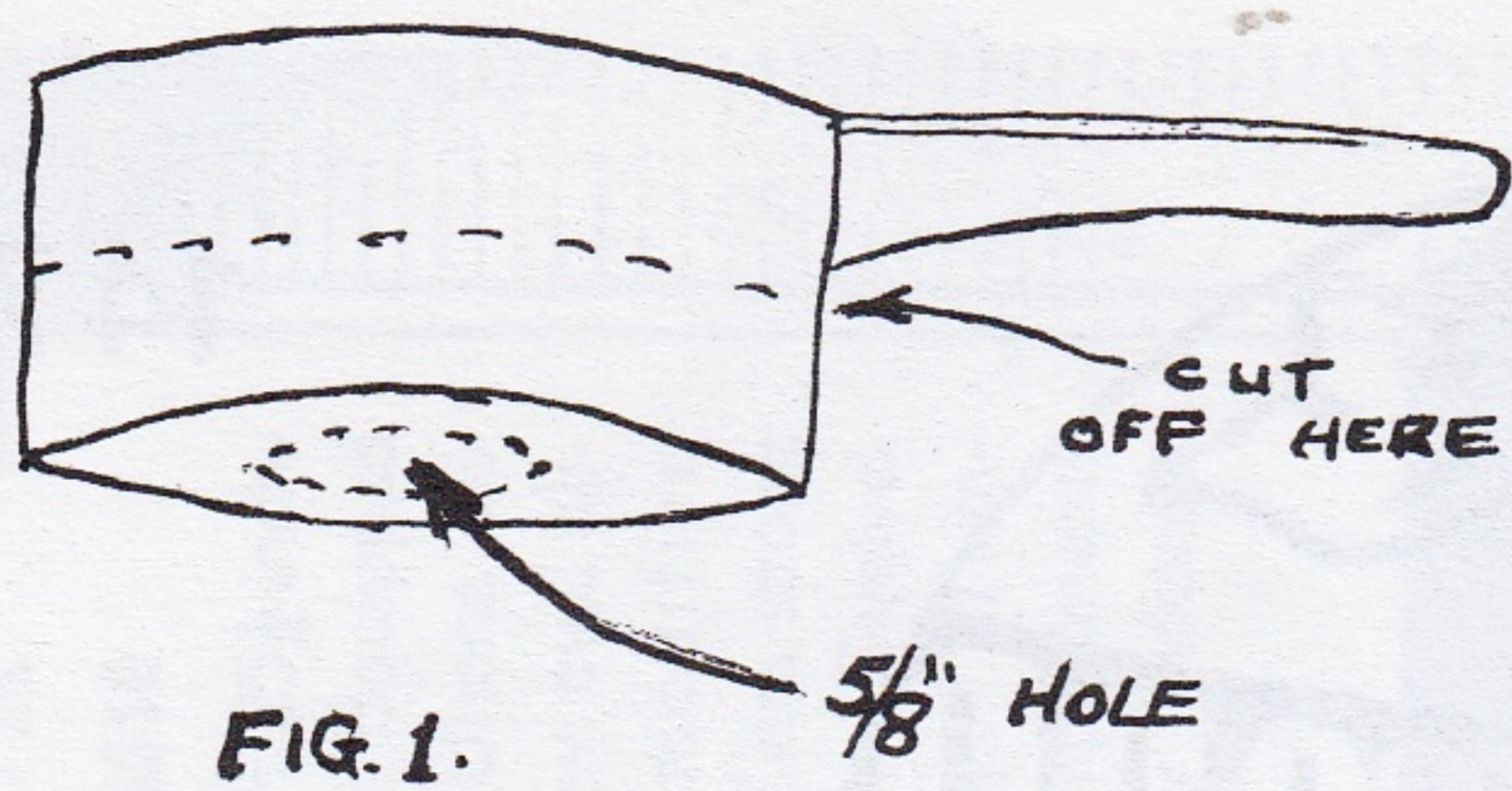


FIG. 2

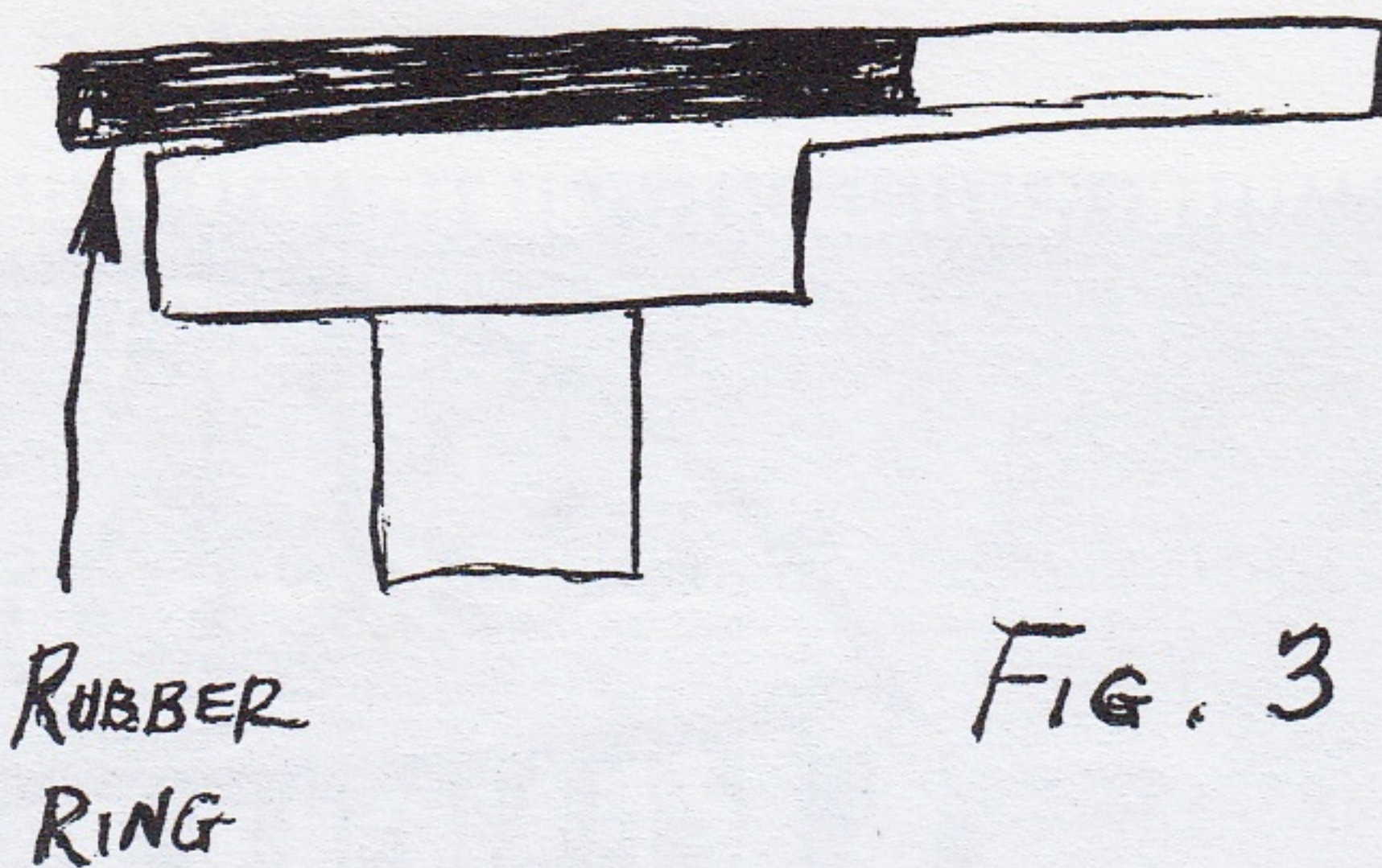
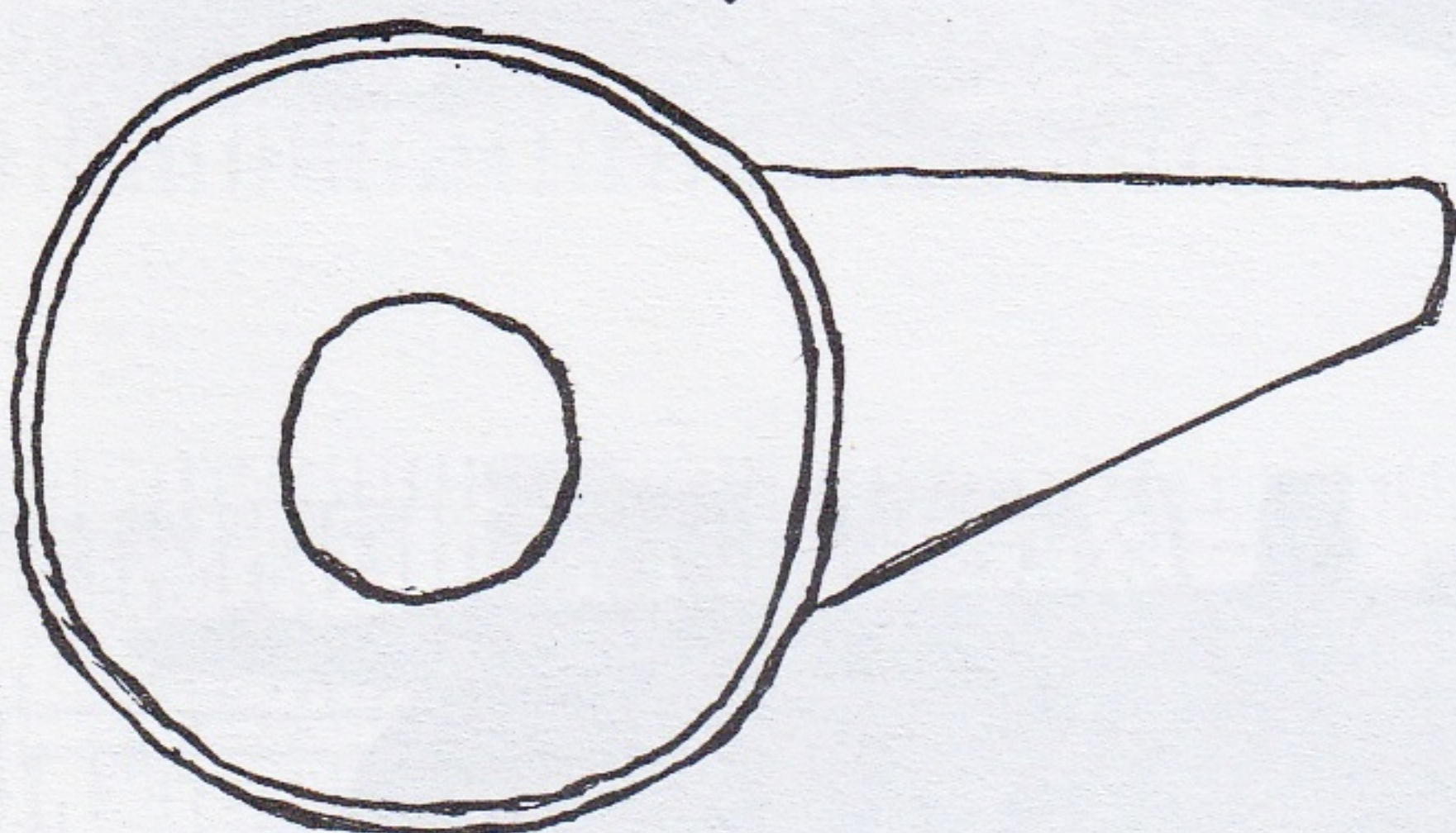


FIG. 3

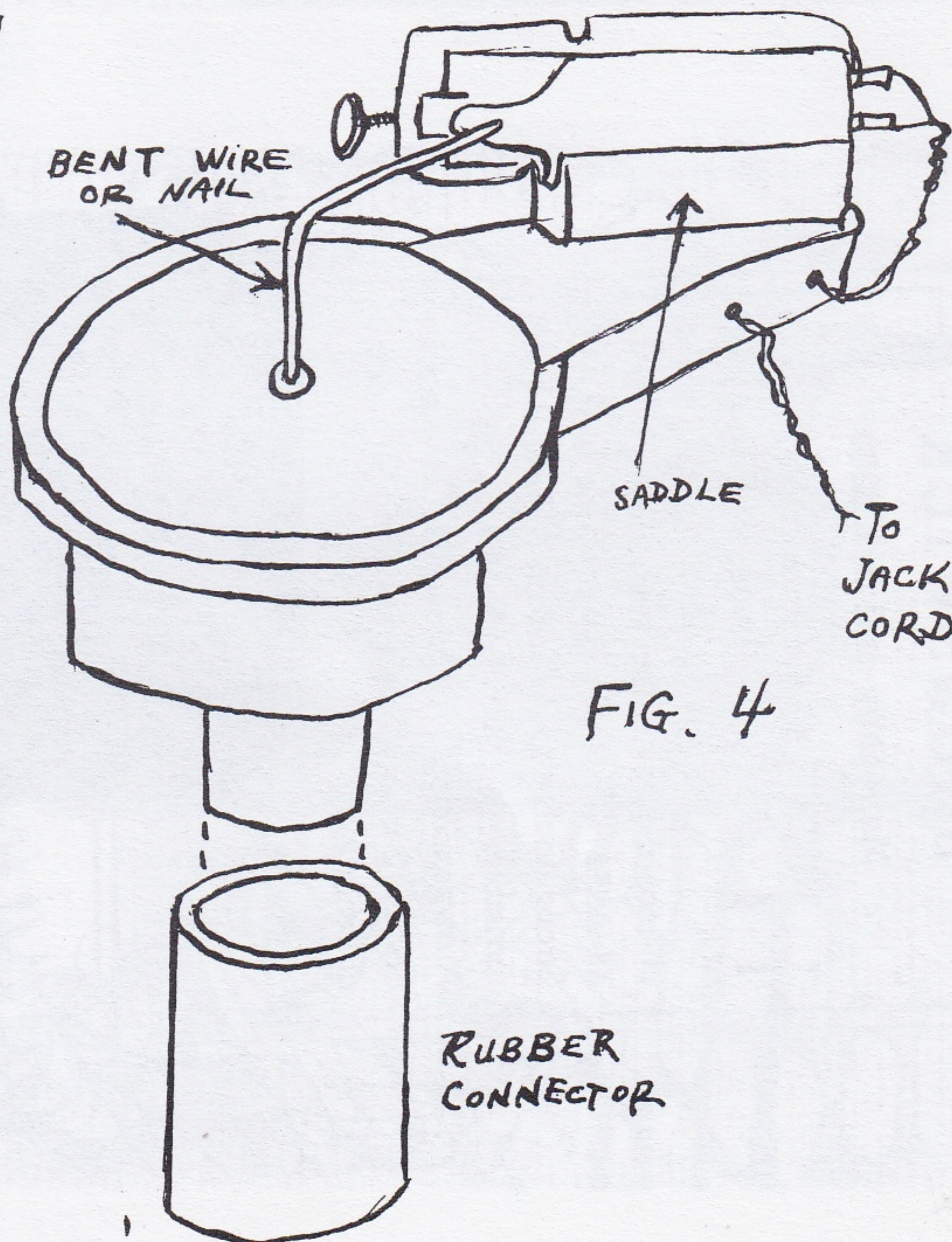
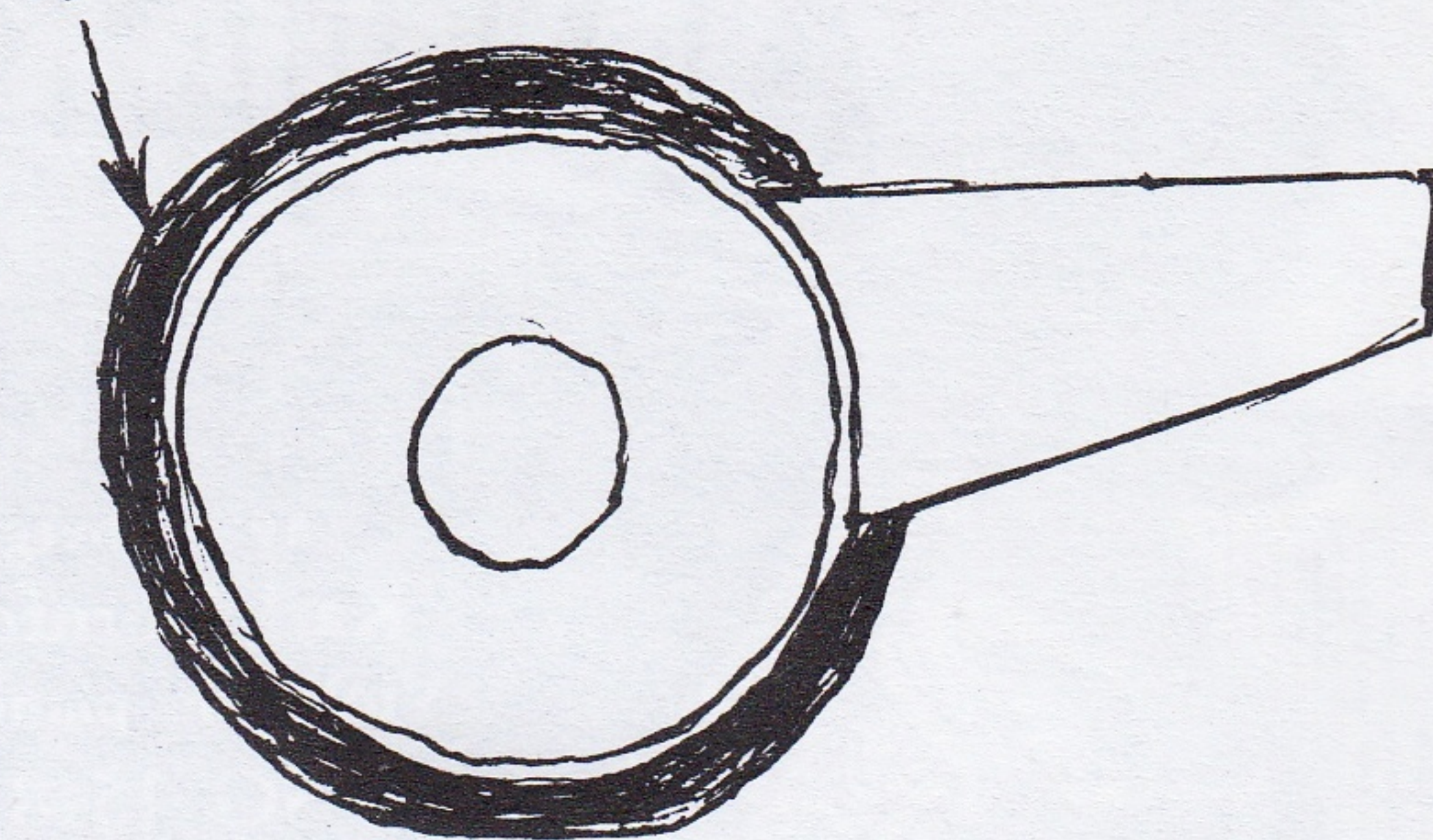


FIG. 4